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Modeling Sustainability Maturity in Corporate Real Estate

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Abstract

Sustainability in corporate real estate has been lately recognized as an integral part of business almost at every enterprise, however, its perception might extremely differ in various industries. Sustainable corporate real estate practices have been extensively analyzed in recent studies, yet real estate is an ambiguous field and the practices still lack of holistic understanding.

The aim of this Master's thesis is to summarize and systematize the present sustainable real estate practices and propose a generic Sustainability Maturity Model for Corporate Real Estate.

Research process was implemented in accordance with Grounded Theory approach. Initial model was constructed based on findings from literature review and tested in interview session with some major Finnish companies, recognized for their environmental work. Theoretical sample of 10 companies was used for interviewees' selection. In the interviews, the most typical sustainable real estate practices were identified as components of the generic model. Structure of the model composes five maturity levels and six dimensions: resources, processes, commitment, communication, finance and strategy. The generic model contains 18 most typical sustainable corporate real estate practices that explain the role of real estate at each maturity level.

The generic model is an indicative tool for sustainability maturity assessment in corporate real estate. It provides a holistic and systematic approach to the present sustainable practices and demonstrates how corporate real estate contributes to company's sustainability. It might be applicable as self-assessment tool and as a benchmark because consists of the typical practices, pursued by the field leaders.

Keywords Sustainability, Corporate Real Estate, Sustainable Practices, Maturity Model

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1 Introduction

1.1 Background

Urgent need for sustainability was first announced in the Brundtland Commission report in 1987, which defined 'Sustainable Development' as *a development that meets the needs of the present without compromising the ability of future generations to meet their own needs* (World, 1987; United, n.d.). Since then sustainability has evolved into a complex economy-ecology-social nexus, and today is defined as *an economic state in which demands on environment can be placed by people and commerce without reducing its capacity to provide for future generations* (Khalili, 2011). According to Drexhage and Murphy (2010), sustainability has been accepted by governments, businesses and civil society as a guiding principle in various fields. However, its evolution is a continuous process, which requires changes in the way the world does business. Khalili (2011) states that the ecological crises have been caused by human activities, and the environmental crisis was clearly correlated with the economic, social, political, and cultural crises. Drexhage and Murphy (2010) add that the recent financial crisis revealed decline in trust and liberalization, therefore, the renewed 'sustainability' concept in business is *a development path that is truly concerned with reduced resource use, integrated economic, environmental, and social issues in decision making.*

Sustainability in corporate real estate has been lately recognized as an increasingly important area and is extensively discussed in the recent studies. A great part of these publications examine natural resources saving practices in the buildings, whereas others analyze management of sustainable properties. The former are mainly quantitative investigations of changes-related benefits such as improved working environment, greater employees' productivity and increased property utilization. The latter studies embrace communication, finance, strategies, and demonstrate qualitative implications on the phenomenon. However, sustainability components lack of comprehensive understanding and classification. Much uncertainty still exists about the relation between the sustainable practices that belong to different maturity levels. Therefore, this Master's thesis is aimed at suggesting holistic approach to sustainability maturity in corporate real estate.

Surprisingly, a considerable amount of literature has been lately published on business or product sustainability models. It can be argued that real estate is much more complicated to analyze and systemize because of heterogeneity of existing building stock. Moreover, the analysis of sustainability in corporate real estate requires a case-type approach because of differences in companies from different industries. Nevertheless, all firms need physical space for their activities, and thus property is a connecting link between different businesses. This observation implicates a possibility to analyze and systemize similarities in the corporate real estate practices at a general level. Furthermore, Sustainability indices and Sustainability organizations involve a great number of different companies. It indicates that sustainability is not a business-type specific attribute, but a capability to operate deliberately and responsibly. Therefore, incomparable companies can be analyzed together in terms of sustainability maturity in their corporate real estate.

1.2 Research Objective and Questions

The objective of the thesis is to suggest the generic Sustainability Maturity Model for Corporate Real Estate, as an indicative tool for measuring sustainability maturity in corporate real estate.

Research questions are as follows:

1. What sustainable corporate real estate practices are present at companies, recognized for their environmental work?
2. What is the perception of these practices?
3. How to summarize and systemize the practices into generic model?

The purpose of building this model is to provide a holistic and systematic approach to current sustainable practices and demonstrate the contribution of corporate real estate to company's sustainability.

1.3 Research Approach

In this thesis, research data is collected in semi-structured interview session with some major Finnish companies, acknowledged for their sustainability work. The reason for selecting this type of interviews is that it provides a possibility to prepare discussion themes in advance, but also allows asking additional questions. The theoretical sampling of the interview companies is based on their sustainability performance, ignoring the content of their property portfolios. Reasoning for the companies' selection is rankings in sustainability indices, Corporate Social Responsibility reports, also participation in sustainability activities and organizations. Selection criterion for interviewees is their expertise either in sustainability or real estate management at particular company.

In order to achieve the main objective of this thesis, research process is constructed in accordance with Grounded Theory, which is an advantageous technique of qualitative data analysis, when creating verified generic concepts. Figure 1 illustrates that the Grounded Theory research process consists of five steps: open, axial and selective coding phases and two intermediate steps, as defined by Strauss (1987). Likewise Ritchie and Spencer (2002) affirm that research process should consist of phenomenon familiarization, investigation, indexing, charting, mapping and interpretation of findings.

Figure 1 Coding process (Strauss, 1987)

Strauss (1987) emphasizes that coding is not only a method to categorize data, but also a technique of generating new concepts and findings generalization in terms of linkage and relationship between codes. Extracting the most typical features and patterns and identifying their connections is a key to solid theory, the generic model in this study. More detailed description of methodology, used in the research process, is provided in Chapter 4.

1.4 Research Scope and Limitations

Strauss (1987) states that there is much room for researcher's personal insights in the Grounded Theory approach, and thus all study-related decisions must be based on assumptions and explanations. It is important not only decide what kind of data has to be coded, but also determine limits of analysis. The scope of this study is limited by following assumptions:

- The highest proficiency of sustainability is mastered by companies and enterprises, recognized for sustainability achievements,
- Sustainability is a comprehensive concept, and real estate is managed in sustainable way in these companies,
- Sustainable companies are expected to possess the most advanced sustainable real estate practices,
- Throughout these practice, the role of real estate at each sustainability maturity level can be explained.

In this study, sustainable companies in Finland are interviewed in order to test the initially created model. The theoretical sampling of 10 interviewed companies provides sufficient data to observe existing patterns in the field and check applicability of the model. The focus of the study is on sustainability in corporate real estate. Sustainability-related issues that are not relevant to corporate real estate are out of research scope.

1.5 Structure of the Thesis

Thesis structure consists of six chapters, as illustrated by Table 1. Patterns of ongoing deliberation in recent publications on sustainability in real estate are presented in Chapter 2. It aims to give grounds for problem identification and suggests possible solutions to insufficiency of the previous studies. Chapter 3 introduces initial Sustainability Maturity Model for Corporate Real Estate, based on review of existing sustainability maturity models, and describes its components in detail.

Chapter 4 reports on design, implementation and findings of empirical study. Chapter 5 presents key findings from the empirical study. Firstly, sustainability in real estate and sustainability measures are discussed. Secondly, existing sustainable real estate practices are reviewed and described in detail. Thirdly, the initial model is improved and developed into generic Sustainability Maturity Model for Corporate Real Estate. Research summary provides implications and surprising findings from the empirical study. The last chapter provides conclusions, assumptions for the applicability of the model and recommendations for further study.

Table 1 Structure of Master's thesis

1. Introduction	1.1 Background 1.2 Research Objective and Questions 1.3 Research Approach 1.4 Research Scope and Limitations 1.5 Structure of the Thesis
2. Literature Review	2.1 Sustainability and Real Estate in Recent Publications 2.2 Sustainability Measures 2.3 Summary of the Literature Review
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2 Literature Review

2.1 Sustainability and Real Estate in Recent Publications

A great number of previous studies have analyzed sustainability from the 'triple bottom line' perspective which was first coined in John Elkington's book "Cannibals with forks. The triple bottom line of 21st century business", in 1997. Author introduced a new concept of responsible business that includes environmental, social and economic dimensions of sustainable development, as illustrated by Figure 2. (Berkovics, 2010). These three dimensions consist of smaller components that correlate and interact with each other, and therefore have significant effect on the corporate sustainability.

Figure 2 Three dimensions of sustainability (Dyllick, 2002)

Term 'Corporate Sustainability' is well defined by Dyllick (2002): *Corporate sustainability integrates the economic, ecological and social aspects in a 'triple-bottom line' and meets the needs of a firm's direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities), without compromising its ability to meet the needs of future stakeholders as well.* However, author observes that perception of this concept lacks of comprehensive understanding because most companies regard it as only eco-efficiency. In some cases, short-minded companies concentrate on economic sustainability. However, it is not a full understanding and other important issues must be included to make business sustainability solid in a long run. Figure 2 shows close connection between the three dimensions of sustainability in the triple bottom line. It is obvious that these elements cannot be separated and growth of each area should be implemented simultaneously in order to keep balance in their relation. Dyllick (2002) further explains the meaning of each dimension. Economic-sustainable firms demonstrate over-average financial performance and create value for investors. Ecologically sustainable businesses operate in environmentally-efficient way and have minimum effect on environment and natural resources. Socially sustainable companies develop their human capital and actively interact with internal and external stakeholders. Eccles *et al.* (2012) claim that in comparison with traditional company, sustainable organization extensively communicates with stakeholders, and therefore is transparent and trustworthy. In addition to this, the responsible company considers "big" picture and implements large-scale practices that are economic, environmentally and socially balanced. Besides, long-term value is related to sustainable business because it ensures steady cash flows and benefits for shareholders.

"Commercial real estate report", published by Jantzi-Sustainalytics in 2010, widely explains governance of sustainability. In most cases, sustainability culture and corresponding management practices are created at top management level in order demonstrate business strength, credibility and longevity to the rest of employees. Executives are responsible for setting objectives, establishing policies, making all necessary decisions and controlling middle management level. Additionally, sustainable company aims at employee engagement and 100% commitment which can be achieved by educating, training and giving instructions. Consequently, the governance of corporate sustainability is a common feature at majority of sustainable companies. Special departments supervise sustainability and communication with stakeholders internally and externally. Sustainable company thus operates openly and transparently, also actively participates in green organizations and aims to suggest proactive solutions and innovations in its own field. (Jantzi-Sustainalytics, 2010) Besides, sustainable company has a strategy that includes all previously mentioned elements and reflects its purpose of existence. IVG research (2011) provides classification system for sustainability strategies: research, risk reduction, image, productivity and market development strategy. Research-type strategies are usually adopted by production companies that apply innovations in their products development in order to gain larger market share. Companies that recognize sustainability-related risks for their businesses, acquire risk-reduction strategies as proactive solutions of hedging against changes in environment, market, legislation. For production or service providing companies good brand image is a synonym of quality and trust; image strategy helps to protect their reputation. Sustainability maintains their relationship with suppliers, consumers and other stakeholders, and brings new business opportunities. Productivity strategy aims at economical resource usage and increase of employees working efficiency. Market-development strategy is adopted by leading companies that seek to implement more sophisticated market progression by means of standards, certificates and innovations. This is a great incentive to search for niches that can be filled with production or services, demanded by consumers. This classification system implies that sustainable companies, coming from various industries, might possess different sustainability strategies, referring to their purpose of existence. Nevertheless, the greatest sustainability maturity is attributed to these leading companies, and its development is implemented in the similar order by the different companies. Development of 'Sustainability Maturity' is well explained by Gabriel (2012): *it is a curve, linking four phases of the development process: compliance, communication, efficiency and cost savings, growth and innovation.* Author also affirms that value of sustainable business increases simultaneously with growth of sustainability maturity. Therefore, this thesis regards maturity as an expertise and proficiency in real estate sustainability, even though the meaning of sustainable corporate real estate might extremely differ in various companies.

Varcoe and O'Mara (2011) define corporate real estate (CRE) as a function within an enterprise that manages its physical work, production and customer engagement environments. Heywood and Kenley (2008) claim that CRE is an important, tangible organizational resource because it provides physical environment for businesses and has effect on individual and organizational behavior. Additionally, Lindholm and Nenonen (2006) affirm that CRE management supports organizational objectives, strategies and business success, and therefore provides added value for the companies. Authors also note that the perception of CRE management differs in various companies, depending on their organizational structures, purpose of existence and business strategies. Table 2 demonstrates that typical CRE strategies, defined by Heywood and Kenley (2008), aim at

supporting operations, management processes and sales, also provide possibilities to benefit from savings and value creation. Therefore, CRE significantly contributes to business success and directly affects organizational competitiveness.

Table 2 Generic CRE strategies (Heywood and Kenley, 2008)

Generic CRE strategies		
Cost minimization Flexibility Facilitate human resources	Facilitate production, operations and service delivery Facilitate managerial processes Facilitate marketing objectives Promote sales and selling	Capture real estate value of the business Capture financial creation value of business

Shiem-Shin Then (2000) defines two major sources of CRE management: strategic management defines the vision of business development, operational management provides CRE with the best approaches to achieving the goals. Author has observed that lack of strategic orientation in real estate policy and facilities management might cause gap between asset management and strategic management. Analogically, gap between asset management and operational management might originate from insufficient performance indicators. The gaps between two CRE sources cause difficulties in achieving desirable results. To solve this problem, Ellison and Sayce (2007) suggest aligning business policies to property strategy. In CRE strategies, companies should relate their asset base to corporate image, brand awareness and employee satisfaction in order to meet their needs and ambitions.

A concept of the triple bottom line in sustainable buildings is changing over time and requires modern approach: in the recent publications sustainable buildings have been extensively analyzed from environmental advantages point of view, however, economic and social benefits lack of appropriate attention. In the "Business Case for Green Building" (World, 2013), it was noted that the focus from 'planet' is moving to 'people' and 'profit'. This document proved that green buildings generate economic and social value in addition to environmental. Similarly to this concept, at Nordic Green Building Council's Conference 2013, P. Mittermaier introduced "Mountain Sustainability" model which consists of 3 levels (fundamentals, innovation and transformation) and demonstrates how the focus shifts from economic to social issues. The main idea of this model is that awareness changes traditional way of thinking into modern one, more adapted to contemporary requirements. (Nordic, 2013).

In the "Business Case for Green Building", Johan Karlström, the President and CEO of Skanska, states that frequent warnings of changing environmental situation are very rarely followed by suggestions how to run the business profitably when taking appropriate actions. (World, 2013 3p.) Ellison and Sayce (2007) indicate that companies are becoming more and more concerned about sustainability maturity of their buildings or the property that they are willing to acquire. The reason is that sustainability is closely linked to the physical characteristics of the asset and its value, and insufficient sustainability maturity is regarded as risk that might cause value loss. Alternatively, sustainability provides opportunities for value protection and creation. In a similar way, Runde and Thoyre (2010) analyze the significance of sustainability in appraisal process. Their study demonstrates means by what sustainability affects property market value. Authors argue that in the future sustainability will have an effect on costumers' behavior and business decisions in

most industries. They conclude that it is extremely important to observe possible sustainability impacts on other business concepts and recognize all risks that company might face in the future. Nevertheless, the authors emphasize that property-specific green features should always be aligned to market orientation. It is not enough to build a green portfolio in order to maximize the benefits of sustainability. It is important that each property in portfolio contains specific green features, demanded at the market at particular point of time.

As recent as 2012, Ernst & Young carried out a survey on CFO's role in corporate sustainability. The findings indicated that sustainability has become a strategic action, and companies regularly benchmark their performance against competitors and industry leaders. Comparison with peers raises firm's self-awareness and motivation to implement new, more sophisticated practices. Besides, more and more companies get their sustainability reports verified by the third part in order to add credibility to communication with external stakeholders. In addition to being a part of company's strategy, sustainability is regarded as a significant area at financial dimension. Sustainability is an instrument of risk elimination and cost reduction, and thus CFOs are getting more involved in sustainability supervision. Results from Ernst & Young (2012) survey imply that at the leading companies sustainability is supervised by top management level and is a common "language" spoken by peers and competitors in terms of resources management, communication, finance and strategy.

Christmann (2000) proved that cost advantage taken from environmental practices, varies in different companies. Great benefits might originate from cost saving, risk elimination, competitive advantage, increased business capabilities. More environmentally-aware firms achieve better financial results. However, author emphasizes that more benefits are achieved by heterogeneous sustainability practices that absorb different resources and capabilities. Analogically, Dermisi (2009) affirms that company's leadership in the market and added business value are ensured through the best practices. For instance, resent financial crisis revealed green buildings being more resistant to volatility in the economy and the markets. Author has also observed indications of pressure to use green technologies because in the future all companies will have to commit to sustainability in order to protect their competitive advantage. Therefore, sustainability is no longer a top-level activity, but an essential business existence factor, which will eventually become more common practice, applicable by most companies. In 2012 KPMG published a report "Expect the Unexpected: Building business value in a changing world" on business risks and opportunities that will be caused by sustainability megaforces over the next 20 years. These forces connect and interact as an unpredictable system; therefore, it recommended preparing for upcoming major changes in business environment. Preparation should include recognition and distinguishing of causes and results i.e. focus should be moved from elimination of unsatisfactory outcomes to solving the problem which caused it. (KPMG, 2012). Therefore, holistic approach is essential when investigating cause-result relations between single activities. At Nordic Green Building Council's (GBC) Conference 2013, M. Hyytinen pointed at the lack of knowledge in mastering the best practices. It reveals the need to summarize and systemize existing sustainable real estate practices which is one of this study's objectives. In addition to this, he concluded that the focus is no longer put on physical characteristics of the building, but is shifting towards sustainable use. He explained that in most companies user's role is underestimated and, thus should be

well considered and supervised because the fulfillment of sustainability in everyday life depends on everyone's commitment. (Nordic, 2013)

It is important to mention that terms *green building* and *sustainable building* are often used as synonyms but actually have different meanings. Similarities and differences are well described in Deutsche Bank Research report "Green Buildings. A niche becomes mainstream" and are listed in Table 3 (Deutsche, 2010). It can be stated that in both meanings buildings operate correctly and efficiently, use little resources and provide healthy working environment. In addition to this, the definition of sustainable building also includes financial impact analysis, life-cycle assessment, alliance with cultural issues and high-quality technologies. It is also noted that *green* is more relevant definition to real estate market failure; whereas *sustainable* building is considered to have better quality and less risk (Deutsche, 2010). In this thesis, *sustainable* is more accurate and preferable term in comparison with *green* because the focus is on sustainability maturity. However in some cases, where it is possible, both terms will be used alternately as synonyms.

Table 3 Comparison of Green and Sustainable Building (Deutsche, 2010)

Aspect	**Concept/ Term**	
	Green Building	Sustainable Building
Functionality	+	+
Energy efficiency	+	+
Resource intensity	+	+
Health	+	+
Environmental compatibility		+
Socio-cultural aspects		+
Life cycle costs		+
Value/ Earnings		+
Technical quality		+

One of the most essential current discussions in real estate and sustainability is a comparison of so called "green" and "brown" properties. In commercial real estate "brown" describes conventional buildings that have no features of over-average quality and high-performance (Atlanta, 2010). In Runde and Thoyre (2010) study "brown" properties are simply defined as non-green ones, and, according to the authors, the majority of existing building stock is still "brown". At Nordic GBC conference P. Pajakkala stated that most of properties in Finland were built in 1950s-1960s, and therefore sustainable approach is needed when considering renovations and maintenance of Finnish building stock. (Nordic, 2013). Similarly, S. Kongebro stated that more attention should be paid at existing building stock because it has potential to generate added value for less investment, in comparison with new buildings: *"renovation of old building increases its value"*. (Nordic, 2013). He also emphasized that achievements should be measured because collected data can be later on merged with knowledge when creating better buildings. Besides, property is a complex item which requires detailed approach, and this supports the purpose of this thesis to suggest comprehensive sustainability maturity model for corporate real estate.

Runde and Thoyre (2010) emphasize that sustainability is no longer an opportunity to benefit from, but is becoming a risk that has to be eliminated by underperformers. The risk, which these properties might create to the owners, is analyzed simultaneously with potential sustainability benefits. In some cases sustainability might be regarded as risk

control tool when protecting asset market value, instead of being a desirable achievement itself. Furthermore, authors affirm that some of "green" properties might also be in danger because obtaining a green certificate does not guarantee that building will operate in same sustainable way in the future. As a consequence, green labeling should not be a one-time achievement, but a continuous process which is thoroughly planned in advance. To illustrate, Miler's *et al.* (2010) study on maintenance and management of green buildings surprisingly demonstrated that green buildings are not always more energy-efficient, in comparison with not green buildings. The reason for this result is insufficient management of green buildings which distracts green features utilization: *a green building is not green unless it is operated green.* The role of green building user has been investigated in Koivisto's (2008) analysis of employees' environmental behavior and environmental knowledge. It was proved that there is a strong relation between environmental knowledge and environmental behavior i.e. "greener" respondents were also identified as more knowledgeable. Results also showed that employees pursue green activities in the office if they are given instructions i.e., employee training increases their motivation to be environmentally-conscious and responsible. Therefore, company should maintain green building features and encourage every person follow common requirements and guidelines.

Ellison and Sayce (2007) affirm that sustainability has to be an integral part at all company management levels and be present in all dimensions, real estate in particular. Company-used premises have a significant effect on its reputation, brand and employee satisfaction. For this reason corporate real estate strategy must comply with company's corporate responsibility policy and sustainability strategy. Failure in creating appropriate sustainability strategy is another important issue which has been broadly analyzed by Bieker (2003). He claimed that structural gap between operational and strategic levels of company management is the main problem i.e., although environmental management systems are pursed, there is a weak connection between them and company's business plan. Another reason is that separate strategies are followed by managers of different organizational levels. Conflicting or overlapping environmental systems tend to fail and consequently impede the achievement of the desired result.

Choi (2009) has also observed major barriers to green development. The first group consists of knowledge gaps in benefits and costs of green practices and increasing demand for sustainability. Another group refers to ineffective communication inside and outside the company. Solid communication is a key factor for successful sustainability integration; therefore, all stakeholders should be engaged in achieving the best results. Communication process has to be maintained both ways: company should collect information on stakeholders' concerns and expectations; stakeholders should be aware of company's sustainable strategies and plans. The third group describes ownership structure and operating cost responsibility, which should ensure full commitment and supervision of sustainability management. The fourth group analyzes funding issues of green practices that are more expensive at initial stage, when investment is first made. However, they pay back in a long-run, and thus comparison of primary cost is misleading and does not reveal the actual situation. The last group investigates risks and process management issues. It is noted that green practices require more efforts to be implemented because they are strictly regulated. It also takes time to prepare companies inside documentation for practices operation and collect data regularly, however, it makes management easier afterwards. To solve these problems in green development, Choi (2009) proposes six principles for removing difficulties that are illustrated in Figure 3.

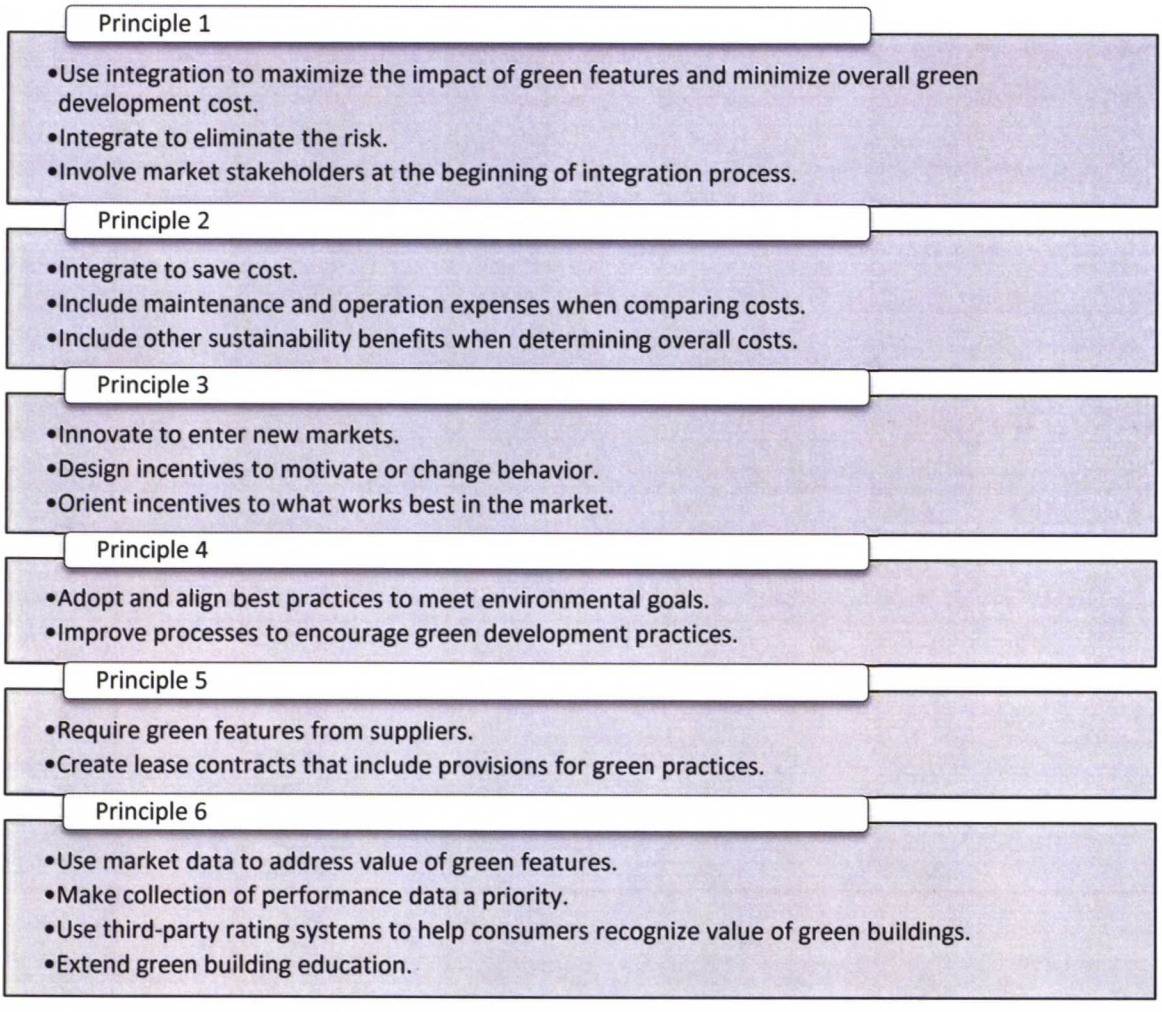

Figure 3 Principles for Removing Barriers to Green Development (Choi, 2009)

The first principle highlights significance of integrated management when eliminating risks. It is recommended to maximize positive impact of green buildings and minimize negative features. The second principle points at comprehensive finance planning which should include all possible costs when comparing several options. The third principle encourages using non-traditional solutions when seeking for new niches in the market. However, it is emphasized that successful innovations have to be market-oriented; otherwise they do not pay back. The forth principle is similar to the first one because it indicates importance of adopting best practices to meet company's goals. The fifth principle aims at communication with suppliers and suggests demanding for high quality products and services that would support own achievements in sustainability. The last principle encourages imposing market observation practices, regular performance benchmarking and taking proactive actions. Furthermore, companies are recommended to use external consultant competence to achieve better results. To sum up, the author suggests changing attitude to green practices from obligatory to voluntary. Being green should be company's choice and green building related issues should be regarded as priority. Although this area is regulated by strict codes and standards, there is plenty of room for creativity and building-specific or company-specific solutions.

Further recommendations for sustainability maturity improvement were proposed by "Canadian commercial real estate sustainability performance report", and are exhibited in Figure 4.

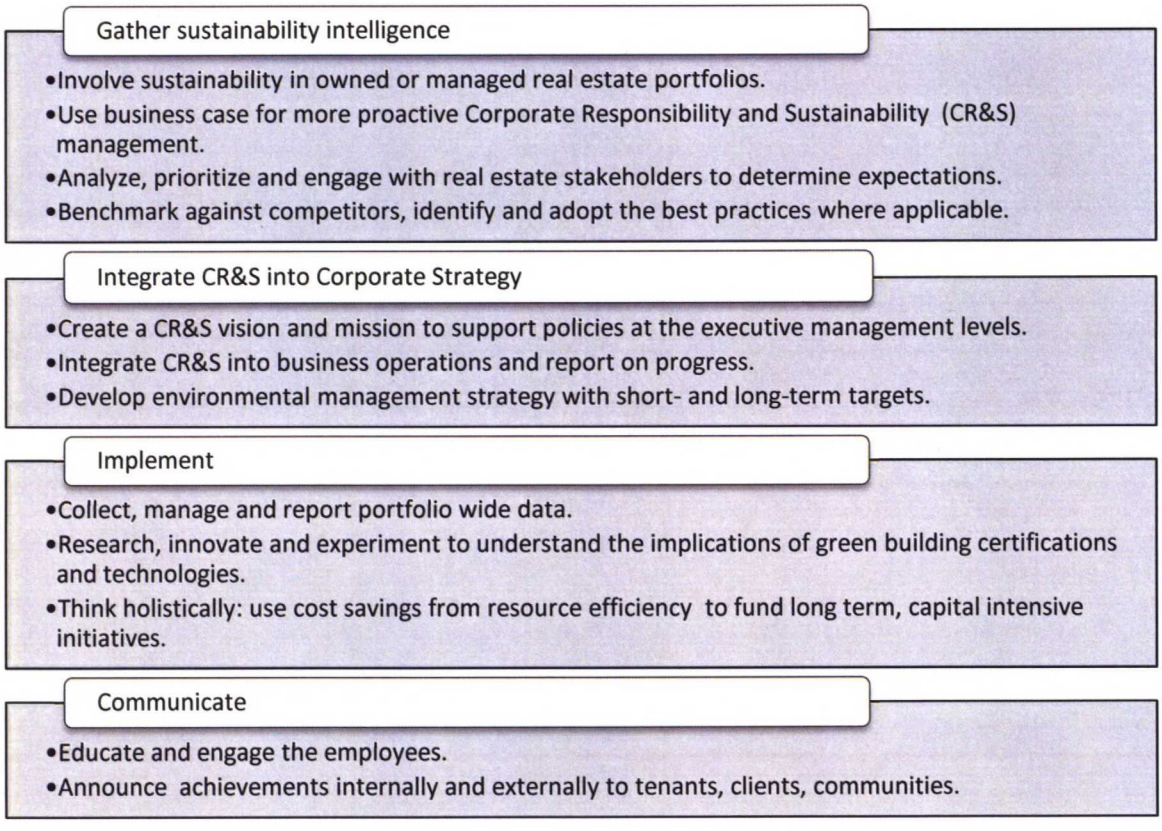

Figure 4 Approach to CR&S performance improvement (Jantzi-Sustainalytics, 2010)

It is suggested to monitor and control own performance constantly and observe competitors to learn about the best practices, taken by the field leaders. Furthermore, strategic planning and sustainability integration in all activities is important for successful business. It is essential to set long-term goals and supplement them with short-term targets because significant results are achieved by small steps. It matches the advice to use small indicators to monitor and control "big" picture. In addition to this, holistic approach is necessary when planning financial resources: it is recommended to finance large scale investment projects by savings gained from resources efficiency. In this manner further investment in sustainability is funded by initial sustainable actions. The last suggestion is to support achievements by engaging with stakeholders and reporting on progress. (Jantzi-Sustainalytics, 2010)

2.2 Sustainability Measures

Motivation of this Master's thesis is well described by Perrini and Tencati (2006): a successful company is in necessity of having evaluation tool for business achievements and sustainability maturity level, as a performance-related qualification. Törnroos (2004) notes that sustainability has recently become an inherent part of businesses. Throughout the three cornerstones of sustainability companies support their activities and benefit form economic, environmental and social issues integration. Efficient management is based on sustainability assessment tools for overall corporate performance that allow companies to

plan, monitor, track and measure progress. In addition to compliance with the whole business strategy, Törnroos (2004) affirms that sustainability must be planned, developed and implemented separately with a proper attention. The future trend is that sustainability should not disappear in business strategy, but has to be considered as a separate key factor for business success.

Lucas (2009) notes that at most companies sustainable practices lack separation from each other and are commonly called "environmental management". However, it is vital to separate practices because they might differ in types of financing, management levels or be applicable to different fields of activity. Törnroos (2004) observes that in Finnish companies environmental definitions are not clearly determined, although the majority of them pay attention at environmental issues. In some cases the same words describe different concepts, and thus it is difficult to measure and compare the achieved results. Likewise, Runde and Thoyre (2010) claim that in the field of sustainability the biggest problems are lack of common terms, definitions and systematic attitude towards sustainability. Moreover, there is no common practice in standardization of the issues because present systematic models are of recommendation-type, not a demand from company. These problems cause difficulties in measuring sustainability impact on economic results, as there is no common practice of sustainability components identification. Currently available information is sufficient, but companies need more knowledge how to systemize it for practical purpose. Likewise, at Nordic GBC Conference 2013, F. Pekar affirmed that insufficient buildings sustainability is caused by lack of holistic approach (Nordic, 2013). For this purpose, Rao *et al.* (2009) studies enlist three significant reasons for implementation of sustainability-related measures:

1. Indicators help to monitor and control the performance,
2. Indicators are a common language to communicate with stakeholders about the performance,
3. Continuous measuring and monitoring process reveals inconsistency of present activities and helps to find solutions for situation improvement.

F. Pekar (Nordic 2013) suggests applying comprehensive framework to improve resources usage and achieve desirable goals by integration of current practices. Similarly, in KPMG report (2012), it is claimed that adequate basis for strategic planning is analysis of multiple indicators by integrated system, which reveals interaction between single indicators and their effect on the entire system. This report also provides recommendations for changing sustainability risks into opportunities. Firstly, it is important to establish risk management tools for risks and opportunities recognition. Secondly, sustainability must become an integral business part with full commitment of employees and business partners. Sustainability results should be corporately measured and reported on regular basis. Thirdly, company should set ambitious, long-term goals that comply with business mission and vision. (KPMG, 2012). Additionally, Lucas (2009) proposes classification system for environmental management practices according to capital investment groupings – physical, human, social and organizational. It makes sustainability management more effective because target areas are clearly defined and there are no overlapping processes. In order to eliminate weaknesses of existing approaches, Perrini and Tencati (2006) suggest applying integrated information system, composed of combined corporate sustainability indicators. Delmas *et al.* (2010) define three key areas of corporate environmental performance: environmental impact refers to resources management, regulatory compliance covers performance tracking and monitoring, organizational processes include environmental

management, reporting on results, communication with stakeholders. In similar way, Rao *et al.* (2009) suggest three categories of environmental indicators: performance, management and condition. The first group of indicators consists of typical meters (such as energy, water and waste) that allow measuring and monitoring performance, comparing results in between and with a benchmark, observing patterns and future trends. Indicators from the second group demonstrate if company is capable of achieving its own goals i.e. whether the management supports the performance. The last group of indicators is more difficult to define because it provides broader picture of the situation: changes in economics, legislation and resources prices. According to A. Lippo, common and clearly-defined key indicators are extremely important for performance monitoring and comparison. (Nordic, 2013)

Delmas *et al.* (2010) suggest grouping companies into best, middle and worst performers according their environmental compliance because it is important to evaluate the whole environmental impact not only the environmental management practices. Authors have carried out a research to demonstrate that favorable environmental management practices do not guarantee good overall sustainability performance. The key reason for this is that most measuring systems focus on strengths, but ignore weaknesses. Therefore, in some cases, companies that possess a few "best practices" and a bunch of "low-level" ones are ranked as sustainable companies. Moreover, this study showed that best practices are highly correlated to environmental concerns because the biggest polluters put most effort to neutralize their negative effect on the environment. On contrary, companies that do not cause so much damage tend to be less active in implementation of environmental practices because there is no significant necessity. In order to identify key elements of leading companies, Delmas *et al.* (2010) have examined reliability of sustainability rankings, as basis for evaluations is rarely publicly available. Authors proved that there are trade-offs of different measurement methods, applied by sustainability rating organizations, and grouped them as follows:

- Trade-offs between positive and negative screenings,
- Trade-offs between environmental and corporate performance criteria,
- Trade-offs between past, current and future performance,
- Trade-offs between what can be measured and what should be measured.

The list demonstrates that it is important to recognize possible side effects of sustainability in addition to desirable positive ones. This classification list could also be applied to a single company's performance because trade-offs exist in sustainability management as well. Every company should have action plan for negative effects elimination and performance improvement. In addition to this, it is necessary to incorporate sustainability into business strategy and ensure that they work together as one unit because trade-offs between environmental and corporate performances are the most critical. Furthermore, environmental strategy requires planning, implementing and monitoring sustainable practices in company's activities: there should be no gaps between past, present and future performance. All stakeholders should observe company's continuous development i.e. how future is supported with appropriate actions in the past. For this reason, it is essential to establish comprehensive measurement system that consists both of measureable practices and those that are difficult to track.

2.3 Summary of the Literature Review

Recent studies implicate that the basis of sustainability in any field is the 'triple bottom line' which links economic, environmental and social aspects of activity. Understanding of this concept might differ in various companies because sustainability is used to achieve industry-specific goals. On one hand, sustainability is a key factor to company's success that should be considered and planned separately with a proper attention. On the other hand, it must be an integral part of all business activities and be investigated in context of other issues. Authors of most studies agree that corporate sustainability measures should include multiple indicators and combinations of them i.e., "big picture" should consist of small target areas. This insight implies that sustainability understanding at a company reflects its attitude towards all target areas, real estate as well.

Some researchers consider real estate as an opportunity to achieve desirable results, others regard it as a risk that should be eliminated. However, general pattern of recent studies is that sustainability in real estate is getting more and more important, and thus will eventually become a compulsory property-related attribute.

Literature review also provided reasoning for creating sustainability maturity model for real estate. Causes for insufficiency of existing sustainable practices were examined in wide range of studies. It has been observed that there is a lack of holistic approach, common measures and definitions. The reason for this is that different companies tend to establish their own real estate management systems, and it is difficult to suggest comprehensive model that would be applicable to different industries. Therefore, in this thesis, corporate real estate is regarded as linkage between various businesses which provides a possibility to suggest generic maturity model for different companies.

3 Constructing the Initial Model

In this chapter, recent maturity models for business and production development are reviewed in order to construct the initial Sustainability Maturity Model for Corporate Real Estate. Aim of the review is to learn about structure and elements of sustainability maturity models, leaving apart the question of their usability and applicability.

3.1 Review of Sustainability Maturity Models

In academia, maturity model is regarded as a framework that provides guidelines for process or product development. The purpose of model is aptly described by Morgan (2013): *"it shows where you are today, where should go in the future, what is the value of doing so, and how to get there"*. Maturity model provides a "big" picture overview, composed of small elements, and thus comprehensively explains how to implement the advancement of product or process. Ordinary maturity model consists of 4-5 steps on the horizontal axis that refer to phases of development. Each step has a title, describing the qualities of product or process and defining the purpose of actions, taken at this phase. Such system is based on field leaders' experience i.e., the steps refer to typical difficulties that arise in development process. The vertical axis consists of focus areas that vary in different models, depending on particular product, process, company or business field. Combined with maturity levels, these areas further explain the aim of each action, taken in the development process. Therefore, the value of in maturity increase is demonstrated through the focus areas that can be divided in two major groups. The risk-related areas, such as use of natural resources or impact on environment, indicate the weaknesses that should be eliminated in the development process. In contrast, opportunities-providing areas, such as marketing and partnerships, demonstrate potential to provide more advantage, and therefore should be developed at next maturity levels. Table 4 provides a summary of recent maturity models and implicates which components are relevant to real estate field. Suitable components are underlined to demonstrate what have been chosen for newly-constructed model.

Table 4 Summary of sustainability maturity models

Model	Maturity levels	Dimensions
The Sustainability Management Maturity Model (FairRidge Group, 2009)	1. Recognize → laggard 2. Initiate → laggard 3. Pilot → follower (involves sustainability strategy and employee engagement) 4. Operationalize → performer (involves sustainable business strategy and continuous improvement) 5. Transform → leader (involves business strategy and sustainability innovation)	Key dimensions: 1. Strategy 2. Organization 3. Process 4. Measurement 5. People 6. Marketing

Business Sustainability Maturity Model (Cagnin *et al.*, 2005)	1. Ad hoc 2. Planned in isolation 3. Managed with no integration 4. Excellence at Corporate level 5. High performance sustainability net	Value activities: 1. Strategy 2. Partnerships 3. Motivation 4. Competences 5. Communication 6. Technology 7. Operations
Sustainability Maturity Model (Kane, 2012)	1. Compliance 2. Lip Service 3. Bundle of projects 4. Management system 5. Full integration	
Sustainable Enterprise Maturity Model (The Results Group, n.d.)	1. Complier 2. Dabbler 3. Consistent improver 4. Enterprise optimizer	Enterprise Dimensions: 1. Sustainability Focus and Strategic Orientation 2. Sustainability Image Marketing 3. Delivering Targeted and Superior Offerings 4. Supply Chain and Costumer Support 5. Leveraging Green as Innovation Catalyst 6. Leadership and Engagement
Green Business Maturity Model GBMM (OMG, 2009)	1. Ad-hoc 2. Defined, documented and architected 3. Repeatable and governed 4. Optimized and extensible 5. Demonstrable ROI of green initiatives	GBMM Dimensions: 1. Governance and Compliance 2. Business Operations 3. "Green data" 4. Supply Chain
Sustainability Maturity Assessment Model (Atos, 2011)	1. Initial Motivations → compliance 2. Process Development → Corporate Social Responsibility 3. Defined Strategy → Process change 4. Managed Strategy → continuous improvement 5. Optimized Strategy → environmental excellence	
A Sustainability Program Maturity Model (DeSeve, 2008)	1. Recognized need 2. Baselined 3. Planned response 4. Quantitatively Managed Program 5. Optimized institution	Focus Areas: 1. Leadership Driver 2. Team Driver 3. Target Results Sources 4. Target Projects 5. Source Data 6. Reporting 7. Communication
The Sustainability Maturity Path (PwC, 2011)	1. Compliance: must do → value protection 2. Obligation: expected to do → value protection 3. Efficiency: smart to do → value creation 4. Leadership: long-term viability → increasing value	

Sustainable Development Maturity Model (Encyclopedia, 2001)	1. Inactive 2. Reactive 3. Interactive 4. Proactive	1. Environmental unawareness 2. Pollution control 3. Process Integration 4. Holistic Facility Planning 5. Industrial Ecology 6. Sustainable regional and global development
Sustainability Maturity Model (Sustainable Dynamics, n.d.)	1. Operations Compliance 2. Operations Measurement 3. Operations Management 4. Product Strategy 5. Business Strategy	1. Economic 2. Environmental 3. Social

In FairRidge Group (2009) and DeSeve (2008) models, base level refers to recognition of ineffectiveness and attempts to solve it. Similarly, PwC (2011) Maturity Path and Sustainable Dynamics (n.d.) model indicate that actions, taken at this level, aim at minimum compliance with regulations and legal requirements. However, according to Kane (2012) and Cagnin *et al.* (2005), companies do not consider these actions properly.

Next steps are more complicated to distinguish and summarize because they vary in models with 4 and 5 maturity levels, however, there are some noticeable and observable patterns. In FairRidge Group (2009) model, level 2 includes planning activities and preparing necessary documentation, according to OMG (2009). Cagnin *et al.* (2005) emphasize that at this stage planning is considered as initiation of development process and is yet implemented in isolation. In Sustainable Dynamics (n.d.) model, base level is followed by measurement and management of operations. Likewise, 'management' is assigned to medium maturity levels in Cagnin *et al.* (2005), Kane (2012) and Atos (2011) models. Consequentely, measuring and managing results in improvement at level 4, according to FairRidge Group (2009), The Results Group (n.d.) and Atos (2011).

Definition of the highest maturity level differs in the reviewed models. For example, only in OMG (2009) model 'optimization' is assigned to level 4, The Results Group (n.d.), Atos (2011) and DeSeve (2008) regard it at top-achievement of product or process. Level 5 contains of 'innovations' in FairRidge Group (2009) model and 'green initiatives' in OMG (2009) model. Kane (2012) and Cagnin *et al.* (2005) emphasize significance of integration and commitment, and thus include it to the top maturity levels in their models.

It can be summed up that ordinary model consists of 4-5 maturity levels, each of which describes advancement of the subject: base level refers to the beginning, top level – to the highest proficiency. Additionally, some of the models provide titles for subject at particular maturity levels, for example, in Sustainable Enterprise Maturity Model (The Results Group, n.d.) beginners are 'compliers', and leaders are named 'enterprise optimizers'. Elements of the model might be also grouped into focus areas that are in most cases called 'dimensions'. On contrary to maturity levels that are similar in most models, dimensions are typical to specific industry with distinguishing target areas. For instance, comparison of Cagnin *et al.* (2005) and DeSeve (2008) models implies that dimensions might consist of the beneficial activities to be supported, or risky areas that need some improvement. Therefore, model for corporate real estate should consist of field-specific dimensions, whereas, maturity levels can be selected from the other frameworks. It is important to note, that newly-constructed model will consist of "neutral" dimensions" i.e., maturity levels

will indicate what areas need to be supported or improved. In The Sustainability Maturity Path, value protection, increase and creation is marked as result of particular maturity activities (PwC, 2011). This perception is regarded as highly applicable to real estate field, and thus will be included into theoretical model for corporate real estate.

The review of the sustainability maturity models implies that real estate does not differ from product or business in respect of its maturity development. Besides, this type of framework supports dividing "big picture" in small elements (focus areas) and then collecting them into one entity. Importantly, elements of corporate real estate model should be relevant to special characteristics of this business field. Therefore, review of existent maturity models provides only "empty" framework that has to be modified and further developed in the empirical part in order to serve its purpose.

3.2 Initial Sustainability Maturity Model for Corporate Real Estate

This chapter presents the initial Sustainability Maturity Model for Corporate Real Estate, based on review of recent maturity models for business or product sustainability. As displayed in Figure 5, the initial model comprises of five maturity levels and six dimensions.

Single Asset level ← → Corporate (Portfolio) level

	1 **Recognize & min Comply**	2 **Plan & Initiate**	3 **Measure & Manage**	4 **Integrate & Improve**	5 **Optimize & Innovate**
	Ad hoc - Dealing with obvious ineffectiveness	**Experimental** - Single practices and activities - Documentation	**Operational** - Performance tracking - Multiyear data	**Tactical** - Sustainability strategy - Improved goals	**Strategic** - Sustainability finance - Innovations
Resources					
Processes					
Governance					
Communication					
Finance					
Strategy					

Protecting the Value → Increasing the Value

Figure 5 Initial Sustainability Maturity Model for Corporate Real Estate

'Single Asset' in this model means single property which can be either one building or a site, 'corporate portfolio' refers to all assets owned or used by a company. The arrow between 'single asset level' and 'corporate level' demonstrates that development of sustainability maturity from the base to corporate level, is implemented trough all 5 maturity levels. Similarly, corporate decisions, made at the highest maturity level, are applicable to lower maturity levels and single assets.

'Value' in the initial model refers to property value. Real Estate Word Database describes value as *a present worth of future benefits arising out of ownership to a typical user or investor* (Real, 2010). Therefore, value protection at level 1 indicates attempts to save current utilization level of existing buildings. Analogically, increasing the value at level 5 refers to improving property qualities and property value, because multiple sustainable real estate practices.

It is assumed that level-1 practices are related to single asset; level-5 practices are corporately applied to the whole real estate portfolio. At level 1, practices aim to protect value of the building, more advanced practices help to increase it, at the highest maturity level value is created.

3.3 Maturity Levels

Five maturity levels for the new model were selected in accordance with findings from chapter 3.1. It was decided that initial model consists of these maturity levels:

Level 1. Recognize and minimally comply. In the beginning companies take ad hoc activities in order to eliminate obvious ineffectiveness, such as users' complaints and excessive energy usage. Practices at this level are reactive actions that aim at property value protection and compliance with legal requirements and regulations.

Level 2. Plan and initiate. At this level company attempts at planning and implementing basic saving practices and supports them by standard documentation such as Environmental Policy.

Level 3. Measure and manage. At this stage focus is on performance tracking and multiyear data collection. Results of present practices are monitored and analyzed to improve management efficiency and increase property value. In addition to this, required actions are planned and implemented.

Level 4. Integrate and improve. Increased efficiency of activities motivates companies to seek for possibilities to achieve even better results. At level 4 separate sustainable real estate practices are integrated in order to improve overall performance.

Level 5. Optimize and innovate. At the highest maturity level, sustainability is managed corporately in order to optimize company's overall performance and create portfolio-wide property value. It involves strategic activities such as sustainability finance, performance benchmarking and innovations.

3.4 Dimensions

As was discussed in chapter 3.1, a variety of sustainable real estate practice imposes necessity for classification. In order to simplify usage of the model, practices are grouped into six dimensions that are as follows:

Resources. This dimension includes natural resources, such as energy, water and waste. Human resources are assigned to Communication dimension, financial resources – to finance section.

Processes. This group consists of regular, continuous activities, related to resources management, maintenance, performance supervision and others.

Governance. This dimension includes documentation and standardization of the practices and management activities, such as management policies or buildings certificates.

Communication. This dimension contains interaction with stakeholders such as employees, owners, investors, customers, suppliers, community and NGOs. Communication with employees, owners and current investors is regarded as internal; external communication refers to other stakeholders groups.

Finance. This group includes sustainability finance related issues, such as financial impact analysis and investment planning.

Strategy. This category consists of strategic activities, such as "big" picture analysis, forecasting and determination of business vision, long-term and large-scope planning.

4 Empirical Study

This chapter presents the process of the Empirical Study. The first part defines theoretical grounds for research and introduces methods and techniques, used in the study. The second part provides selection criteria for interview companies, and the section describes the process of interviews conduction.

Qualitative data analysis is a complicated process that can be conducted by techniques, such as Typology, Taxonomy, Grounded Theory, Induction and Discourse Analysis. (Qualitative, 2010). Ritchie and Spencer (2002) describe qualitative data analysis as detective methodology which aims at investigating, identifying, categorizing, theorizing and mapping the findings. The Grounded Theory was selected as a basis of this study construction because its main purpose is to generalize empirical study findings and build verified generic concepts. It also matches research questions and objective, formulated in chapter 1.2. The origin of the Grounded Theory is *Awareness of Dying* which was published by Barney Glaser and Anselm Strauss in 1965. It was first applied as data analysis method in social sciences. Since then the concept has been broadly investigated and further developed on the grounds of theory verification, and today is widely applied in business studies. This thesis follows the latest 5th edition of *The Discovery of the Grounded Theory: strategies for qualitative research* book by B. Glaser and A. Strauss. Authors claim that theory is a strategy to analyze data, create, describe and explain concepts. Additionally, the theory must be understandable, suitable and practically applicable. The Grounded Theory fulfills these requirements because its categories and concepts originate from real life observations and are relevant to the observed field. Moreover, theoretical concepts are being developed in relation to the data during the entire research course.

Glaser and Strauss (2010) explain that the Grounded Theory differs from other theories because is built as ready-to-use concept. It supports data collection process and provides tools for sorting and analyzing information. Moreover, it requires clarification of dimensions and categories, used in the concept, and demonstration of their relevance to research question. In this empirical study the research is carried out according to the initial Sustainability Maturity Model for Corporate Real Estate i.e. dimensions and levels of maturity remain the same all along the research course. Their relevance is questioned and practically checked during the interviews. The most significant advantage of the Grounded Theory is complex research process which contains definite steps and thus is easily understandable by external user. Furthermore, theory participates at all stages of the research process: *generating a theory involves a process of research.* (Glaser and Strauss, 2010 233 p.). This assures that theoretical concept is aligned with the findings from the empirical study and is reliable. Another advantage is that the substantive Grounded Theory corresponds to daily life and people from particular field can understand how it should be mastered and applied in practice (Glaser and Strauss, 2010 240 p.). There are strict requirements for data-collection processes and proceeding, but research techniques are flexible and can be modified depending on the need; overall research quality might be increased, as a result.

The Grounded Theory is often criticized for time consuming data-collection process and necessity of subjective decisions that in some cases must be taken by researcher. Glaser and Strauss also emphasize that value of the concept is data generalization, not facts

themselves. This ensures durability of this theory, because facts change over the time. However, focus transfer from observed facts to general patterns might be ambiguous in some cases. (Glaser and Strauss, 2010 244 p.).

The main contradiction between this study and theoretical framework is that original theory from 1960s assumes that all research questions and hypothesis arise from data itself with no a priori knowledge in the field. As a result, finalized theory is universal and applicable under various circumstances (Glaser and Strauss, 2010). Undoubtedly, theory which originates from defined field is more limited in comparison with the one, created from sketch. However, the scope of Master's thesis is too small to build theory from sketch and it is important to rationalize the use of data for analyzing sustainability maturity comprehensively. It is also essential to familiarize with target companies beforehand in order to make efficient interview sessions, although information that will be provided by interviewees is unknown until the end of course. As a result, credibility and relevance of the concept might be even greater.

4.1 Research Design

The objective of this thesis is to suggest the generic Sustainability Maturity Model for Corporate Real Estate. In order to identify elements of the model, it was decided to conduct interview sessions to investigate the practices, applied at some major Finnish companies, recognized for environmental their work. Semi-structured interview form was chosen because it is based on initially prepared discussion themes, but also allows asking open questions. Tuomi and Sarajärvi (2009, 75 p.) describe this type of interview as theme analysis which thoroughly investigates selected topics and allows discovering context and circumstance of each observed phenomenon. Even though semi-structure interview should last as long as necessary, it is advised to plan meeting structure beforehand and use time efficiently. Detailed interview agenda, provided in Appendix A, makes it possible to complete the course as planned without delaying interviewee's time or leave some questions apart if there is not enough time to discuss them all.

As presented in Chapter 1.3, this research is conducted in accordance with Strauss's (1987) Grounded Theory approach. It is modified in accordance with the research purpose and the adapted process is illustrated by Figure 6. Initially reading articles and books helped the researcher to familiarize with previous studies, carried out on the subject and build a research question. It also provided useful knowledge to use during interviews session i.e. prepare relevant discussion themes and be able to respond to questions.

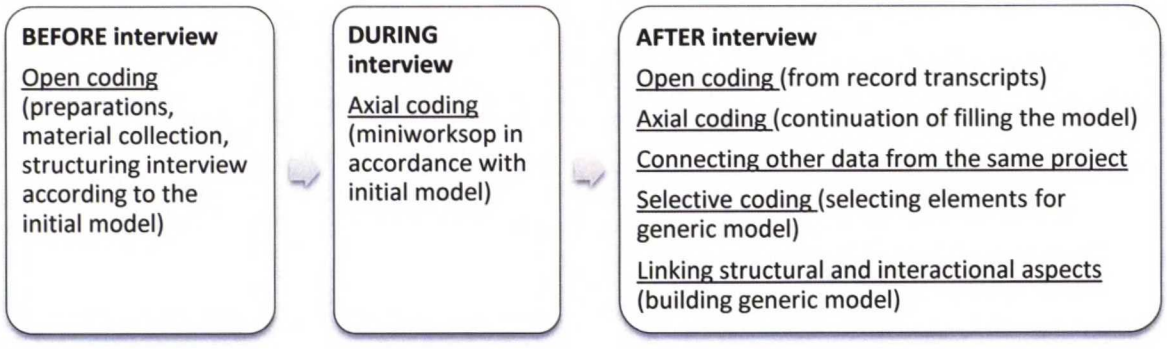

Figure 6 Adapted process of interview data coding

In this study, theoretical framework is applied at the beginning of research process to ensure its effective guidance. The initial theoretical model is created before the implementation of the empirical study. According to Mason (2002), graphical information supports the research because different process-management techniques can be applied spontaneously at the meetings with respondents. For instance, the initial model can be used when explaining structure of the study and responding to comments and questions.

Straus (1987) notes that the Grounded Theory consists of conceptual categories and their conceptual properties. Therefore, they are not data themselves, but describe information. In this research, conceptual categories are called "dimensions" and their conceptual properties "sustainable real estate practices". Glaser and Strauss (2010) claim that general categories might be also identified when comparing different activities in various circumstances. For that reason initial dimensions might be removed from the framework or be substituted with more appropriate ones. On contrary, properties of conceptual categories are not clarified at model creation phase and will be investigated and defined at later stages as most typical ones.

According to Strauss (1987) *Open coding* phase identifies general themes in the data. It is based on general observations and inspections of information. In this study, open coding phase begins before the actual interviews because it is important to collect much information beforehand and prepare relevant questions for each interviewee and think of possible answers. Extensive preparations help to familiarize with sustainable real estate practices in advance and lead the research process smoothly and efficiently. The main themes for interviews and later analysis are then identified, therefore, this step partly belongs to open coding phase which focuses not on naming exact variables, but on investigating overall patterns. Analyst's role is significant when recognizing common indications in a wide range of heterogeneous data. He has to identify all meaningful concepts that will be grouped and categorized afterwards. Besides, theoretical questions and possible answers can also be formulated at this stage. After that, concepts with same implications but different titles will be assigned to the same category for generalization purpose.

At *Axial Coding* step, analysis is more detailed and oriented to smaller features, such as single categories or dimensions. Attention is then paid at conditions, connections, consequences and strategies that are characteristic of particular categories. It is important to distinguish recurring practices, which are typical to most companies, and exceptional cases. The purpose of this phase is to connect codes with specific categories and identify the linkage between them. Analyst is allowed to choose type of investigation: close-in, further-out or highly directed coding. In this research, the last option is the most relevant because initial model serves as axis for data coding (sustainable real estate practices) already in the meetings with interviewees. Questions for nterviews are organized in the same order as dimensions' column in the initial model and this practical adjustment aligns each session to the research process. The initial model is sent to the interviewee beforehand to familiarize with research subject and be prepared to participate in mini-workshop[1] efficiently. In this exercise, empty initial model is used for generating thoughts and summing up the practices at each company. Due to the reason that workshops are short in time, it is not expected to fill the model completely during the interviews; axial coding is

[1] Mini-workshop is a short exercise at the end of the interview with an aim to summarize and systemize sustainable real estate practices at particular company.

continued at 'after interview' phase. Interview records are converted into text transcripts, and this information is used for further axial coding in order to fill the model completely. Model of each interview is coded separately with the terms and definitions, used at that particular company. Open coding procedure is repeated again to inspect if all considerable information has been extracted from the transcripts of records. After that, the model is refilled with new findings; this phase refers to 'connecting other data from the same project' step.

The last coding part is *Selective coding* which aims at assigning already selected categories to the core (in this case generic model). After open coding phase, it is obvious what are the patterns of the data; during axial coding it is vital to extract direct quotes from the interview transcripts that will support the next phases. At selective coding step, single elements are brought to the whole analysis context and the focus is shifted from a project (in this case interview) to the whole research. Strauss (1987) argues that decision of what data should be coded and categories created, has to be made dependently on the objective of the study i.e. what information answers to research questions best. Surely, it is impossible to avoid data loss because generalized theory has limited capacity; however, detailed analysis ensures that most essential information is included into findings.

Glaser and Strauss (2010) indicate that there are no specific requirements for finalized Grounded Theory form; it can be designed independently from research process or might remain the same as was planned initially. In this study, research framework is created at the beginning of the course and is expected to retain the main features all along the procedure. Undoubtedly, reliability of the model will be investigated and all the feasible improvements made in the following chapters.

4.2 Selection of Interview Companies

Firstly, this Master's thesis assumes that the highest proficiency of sustainability is mastered by companies and enterprises, acknowledged for achievements in sustainability. These companies are the target group of the empirical study because sustainability is a comprehensive concept, and it is expected that real estate in these companies is also managed in sustainable way. One may argue that questions about sustainable real estate should be discussed with real estate companies. However, Tuomi and Sarajärvi (2009, 90 p.) note that empirical study might be successfully carried both in homogeneous and heterogeneous context. Therefore, it was decided to interview the sustainable companies, regardless the industry. Importantly, some of the interviewees requested non-disclosure of their identities and responses; it was therefore decided to apply same rules to all respondents and use codes of industries, instead of actual companies' names. Table 5 provides detailed information about the selected companies and codes, used in the empirical study.

Secondly, in Chapter 2 it was discussed that it is not easy to define sustainable company, because there are no clearly defined criteria. For instance, if company's shares are publicly traded in the market, it can be included into sustainability indices for listed companies. Justification of sustainable non-listed companies might be arguable because it is hard to find objective criteria for selection. Nevertheless, it is important to point out that title 'sustainable' does not guarantee high level of sustainability maturity. Similarly, having no titles does not mean being non-sustainable. In terms of real estate management, it is a tactical maneuver to publish achievements in production. However, it does not mean that

real estate is abused or left apart. Moreover, instead of following mass path, some companies choose taking their own approaches to more sustainable business and possess the practices that are relevant only to them. This is often a case when company exceptionally operates only in Finland and international recognition is not very important.

In this study, the selection of sustainable companies for interviews is straightforward and the grounds of the choice are these two assumptions:

- Sustainable publicly listed companies are those that have recently been ranked in sustainability indices, such as Dow Jones, Global 100, Forbes and FTSE4Good.
- Sustainable non-listed companies are the ones, possessing a wide range of sustainability practices in their everyday life. The criteria for selecting this kind of companies is their Corporate Social Responsibility Reports, participation in sustainability activities and organizations, such as Carbon Disclosure Project, WWF Green Office, Nordic Green Building Council and other.

Selection criteria are designated in Table 5. The first group of criteria was applied for companies B1, P1, P2, P3 and T. Companies PA, RE, B2 and C were selected according the second group of criteria. Environmental Consultant was selected based on expertise in the field.

Table 5 Interviewed Companies

	Company		**Selection criteria**
1.	Public Agency	PA	GRI, CSR Report , WWF, member of Green Building Council Finland
2.	Real Estate Investment Company	RE	The best Real Estate investment manager in the Nordic and Baltic Region by Euromoney, member of Green Building Council Finland
3.	Bank	B1	GRI, Dow Jones Sustainability Index, FTSE4Good, Carbon Disclosure Project, Water Disclosure Project, WWF
4.	Bank	B2	GRI, Carbon Disclosure Project, Water Disclosure Project, member of Green Building Council Finland
5.	Production Company	P1	GRI, Dow Jones Sustainability Index, Global 100, Carbon Disclosure Project, WWF
6.	Production Company	P2	GRI, Dow Jones Sustainability Index, Carbon Disclosure Project
7.	Production Company	P3	GRI, Dow Jones Sustainability Index, FTSE4Good, Carbon Disclosure Project, member of Green Building Council Finland
8.	Telecommunications Company	T	GRI, Dow Jones Sustainability Index, FTSE4Good, Global 100, Carbon Disclosure Project, WWF, member of Green Building Council Finland
9.	Retail	R	CSR report, member of Green Building Council Finland
10.	Environmental and Quality Manager	C	Wide knowledge and working experience in various Sustainability management issues, member of Green Building Council Finland

Tuomi and Sarajärvi (2009, 86 p.) suggest selecting only respondents that have most knowledge on the observed phenomenon. That is why criterion for the interviewees was that their responsibilities at particular company are either property management or sustainability management. It was assumed that any of these two interviewee types would have sufficient expertise both in sustainability and real estate; surely, one of subjects would certainly be more familiar. For this reason, great attention will be paid at person's position and point of view, when analyzing results. One interview was an exception to this rule because the interviewee was Environment and Quality Manager at consulting company. The purpose of this interview was to learn of professional's opinion on the topic, and generally discuss the main sustainability-related issues at the companies. In some interviews there were two participants; 14 respondents in total.

Additionally, Figure 7 illustrates distribution of the interviewed firms. Bank B2 was interviewed twice (the former interview was conducted with Property Manager and Maintenance Manager, the latter with the Head of Sustainability), therefore, 11 interviews were made at 10 companies.

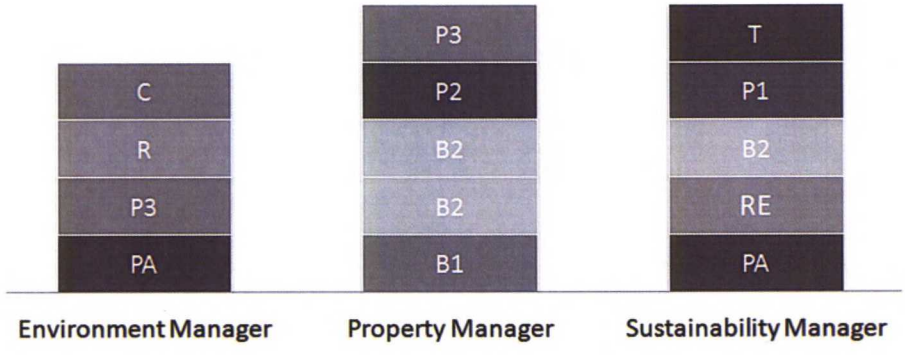

Figure 7 Distribution of the interviewees

One interview was conducted with Public Agency PA, which is a real estate enterprise mostly working with property management and maintenance. Another interview was done at Real Estate Company RE, which core business is investing in real estate, was marked RE. Banks were coded with B1 and B2 (B2.1 and B2.2 name two interviews at the same company). There were three production companies interviewed: P1, P2 and P3. One interview was conducted with Telecommunications Company T and one with Retail Company R from food industry. The main objective for these interviews was to discuss sustainable real estate practices at the companies, fill the initial model using their practices and test applicability of the model in practice. The purpose of interview with Environment and Quality Manager (C) was to make a discourse with professional about the phenomenon of sustainability in real estate and examine the advantages and disadvantages of the initial model.

4.3 Conducting the Interviews

Interviewees were first contacted by short email messages or phone calls. When meeting date was agreed, email with discussion themes and the initial model was sent in order to familiarize with research content beforehand. Secondary data (i.e., company's website, corporate responsibility reports, sustainability indices) were used to learn about each company's business specifics and prepare for the meetings in advance.

All interview sessions were opened with introduction of participants – their professional background and current responsibilities. This information was later on taken into consideration when analyzing different points of view. In the beginning, each respondent was asked about the relation between sustainability and real estate in general and the best approach to the overall sustainability measurement. Next, sustainable real estate practices at the company were reviewed and discussed in order to prepare for mini-workshop. Then interviewer presented the initial sustainability maturity model and explained principles of its usage. At the end of the interview, collective mini-workshop was organized to fill the model with earlier discussed practices.

In accordance with Miles and Huberman (1994) recommendations, Appendix B provides summary of interview session. It includes brief description of interviewee's background, current responsibilities and meeting information. The summary indicates that there were one or two participants in each interview. In total 14 people were in interviewed during the session. The distribution of their main responsibilities and expertise is demonstrated by Figure 7. Five out of them had positions related to property management or maintenance, five were responsible for sustainability management and four – for environmental issues.

All interviews were recorded in order to ensure that no important information will be lost. It was also promised to use transcripts of records only for individual need. During the whole course the interviewer followed initially constructed plan and was responsible for conducting the session smoothly and efficiently. 30 min difference in interviews' durations in most cases originated from interviewee's willingness to provide more detailed answers. All interviews were organized at companies' premises in Espoo and Helsinki.

5 Findings from the Empirical Study

In this chapter implications and observations from the interviews are presented, and the generic model is suggested at the end of section. Findings are provided in the same order as interview questions that are enlisted in Appendix A. Firstly, the relation of sustainability and real estate is described, secondly, methods of sustainability measurement are discussed, and thirdly, sustainable real estate practices are summarized and systemized to the generic model.

Glaser and Strauss (2010) argue that for the Grounded Theory, the scope of research and accurate selection of cases or interviews is less important than possibility to recognize and confirm indications, originating even from small samples. That is why researcher's task is to explain the phenomenon, instead of providing detailed description. Therefore, the generic theory (the generic model in this study) contains of the most typical categories and practices and is more applicable for general cases than specific problems. Nevertheless, authors affirm that each theory provides a refreshed attitude towards already known issues, when combining them with new findings. Therefore, in this chapter, findings from the empirical study intersperse with direct quotes from the transcripts of records.

5.1 Sustainability in General

In the interviews, companies claimed their commitment to sustainability. It is a part of everything in terms of Corporate Social Responsibility at Public Agency (PA): *"if we want to be responsible, we have to work for sustainability"*. Bank (B2) notes that building the sustainability requires integration into business practices and manner of people thinking. Sustainability is also about the company culture, observes Environment Expert (C). B2 remarks that it is a part of everyday life: *"it is visible even in small things"*. Production Company (P1) affirms, *"We are trying to make more out of less, and if it is possible to do something, we do it"*. However, attitude towards corporate real estate is different in production companies. *"From production-oriented company point of view, we do see potential in real estate, but we need to prioritize our actions, and thus we focus on production"*, is explained by Production Company (P3). It is observed that the sustainable companies have remarkable knowledge in sustainability management. For instance, Production Company (P2) states that it is secure to understand sustainability because *"knowledge makes us capable of handling sustainability issues"*. B2 notes that sustainable companies should take advantage of the expertise they have: *"we want to utilize our knowledge, the potential that there is if you really take Sustainability into account"*. Telecommunications Company (T) emphasizes that *"sustainability is something that cannot be added on later, therefore, experts need to be a part of any decision"*. For this purpose, Real Estate Company (RE) relies on *"outsourcing experts competence"*. Alternately, P3 pursues pilot projects in different sites, offices and production facilities in order to look how something should be done in other sites as well.

In the empirical study, there were two main questions, discussed with the interviewed companies. The first one was related to financial issues, because *"in many cases, the main driver is cost"*, was observed by company T. Expert (C) also added that *"economic incentive is usually the one that rules, social and environment should support it"*. The reason for this was well explained by company P3: *"you need to think how to use limited resources in the company to meet the target, it is a question of prioritization"*.

Analogically, company RE stated that *"we try to maximize the value for our investors, so our business case has to show that we are able to achieve our promises"*. Therefore, sustainability has to be proved by concrete business cases, as noted by bank B2. Another important question, discussed in the interviews, is means of communication on sustainability. In bank B2 *"sustainability knowledge flows both ways: to real estate people and back"*. The reason for this is that banks "production" is decision making based on clients' expectations: *"sustainability in our company is so complex because our clients come from any field of business"*. Therefore, only full commitment to the ideas and the practices generate the best results, expert C notes. Company P2 also affirms, *"Our management is committed to environmental issues"* and explains that it is a reason for achievements in sustainability. A typical sustainability development path was described by bank B2: *"you first become aware and start thinking that you have already done it. Then you realize that you need to continue. Later on you struggle for integration, and once you get to the top, everyone is already a true believer"*. Company P1 emphasizes that it is important to define focus areas for sustainability because *"it helps us and our people see the whole area in a very similar way and understandable what our goals priorities are"*. This indicates that sustainability development is a complex process, which requires holistic understanding and systematic approach.

5.2 Sustainability in Real Estate

At the beginning of the interview, each respondent was asked to express opinion on relation between sustainability and real estate in general. Most interviewees regarded real estate as a very important issue for company sustainability. Company RE observes that *"the relation between sustainability and real estate is becoming more and more important"*. Public Agency PA claims that *"throughout the long life cycle, building has a significant impact on environmental, social and economic aspects; therefore, sustainability and real estate are naturally combined together"*. It also adds that *"from a long-run perspective, sustainability is a starting point for everything in real estate"*. Company P2 emphasizes the benefits of real estate in sustainability: *"it is a possibility to save in many ways and expand expertise in sustainability management"*. Sustainability is seen as a comprehensive concept by bank B1: *"we apply sustainability in all possible areas of our business. It is a part of everything we do, real estate in particular"*. Similarly, Retail Company (R) notes that *"sustainability and estate go hand in hand in all dimensions"*.

Company T affirms that *"sustainable facilities and operations support good image and allow company to communicate on its products and services sustainability"*. Company P2 notes that *"headquarters should be a model for the others"*. It is also observed that sustainable real estate has become an expectation from a modern company, as it is mostly driven by demands from employees, tenants, investors and other stakeholders, according to company RE. Besides, company T perceives that *"sustainable facilities and workplaces are the product/ service that company real estate management provides to employees"*. Company RE claims that sustainability improves quality of buildings: *"sustainability in real estate means that the property is in a better shape"*. Therefore, sustainability has positive effect on property value. For example, bank B2 affirms, *"Sustainability is a lot of asset management because you need to work in sustainable way to protect value of your buildings"*. On contrary, Production Company P1 declares that in their industry *"real estate is just something that is there in place, but it is not the focus area"*. Therefore, the significance of real estate to company's sustainability varies in different industries,

depending on what is the target area of particular business. Nevertheless, bank B1 claims that *"it is easier to attach concrete measures and goals to a tangible asset"*, and thus real estate provides possibilities to be more sustainable.

5.3 Sustainability Measures

Another important theme, discussed in the interviews, was sustainability measures. The respondents were asked about the best approaches to sustainability assessment and performance indicators.

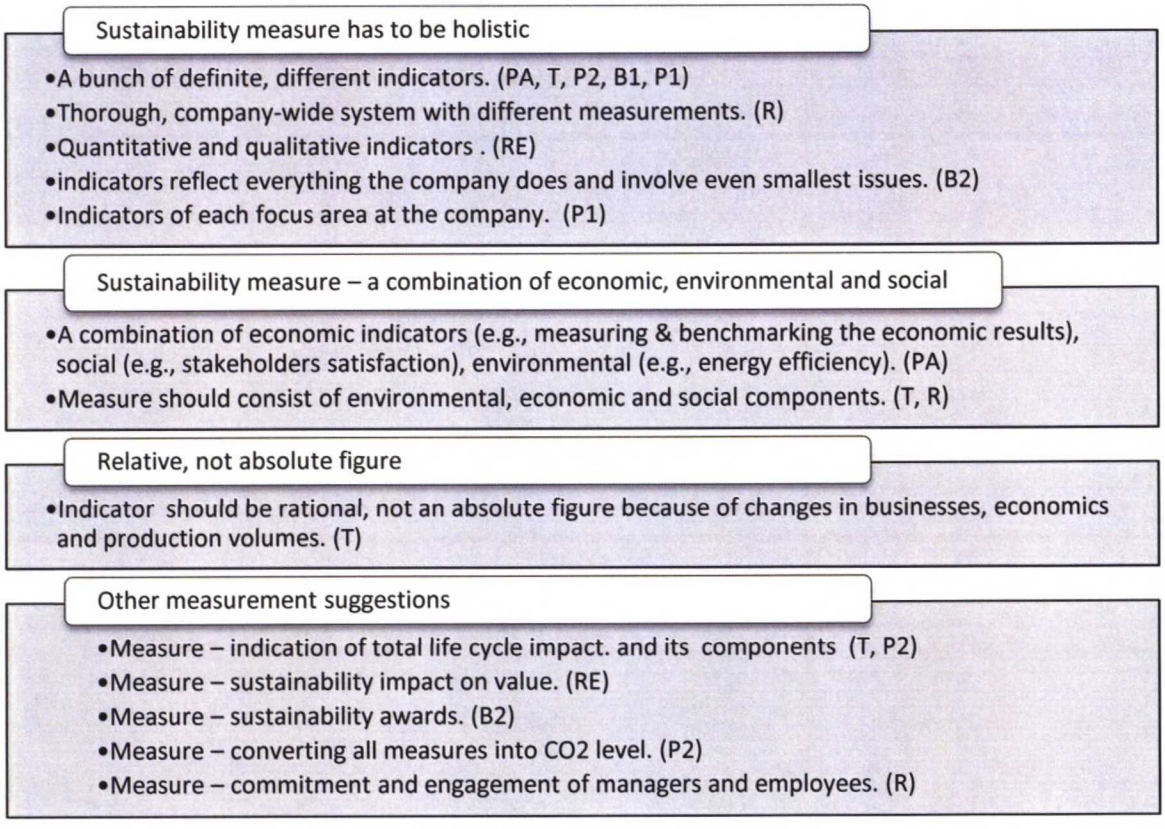

Figure 8 Reflection of sustainability measures

As Figure 8 shows, sustainability measure should consist of multiple indicators, both qualitative and quantitative. It also should refer to the triple bottom line and include a set of economic, environmental and social indicators. In addition to this, interviewees provided some other suggestions, such as awards for sustainability, measurement of sustainability effect on property value and total life-cycle impact calculation.

5.4 Generic Sustainability Maturity Model for Corporate Real Estate

During the interviews, the initial model, introduced in Chapter 3, was extensively discussed. The basic structure of the initial model was regarded as logical and understandable by the interviewees; therefore, the generic model has the same layout. Figure 9 presents the generic Sustainability Maturity Model for Corporate Real Estate. It was created using AutoCAD[2] computer program.

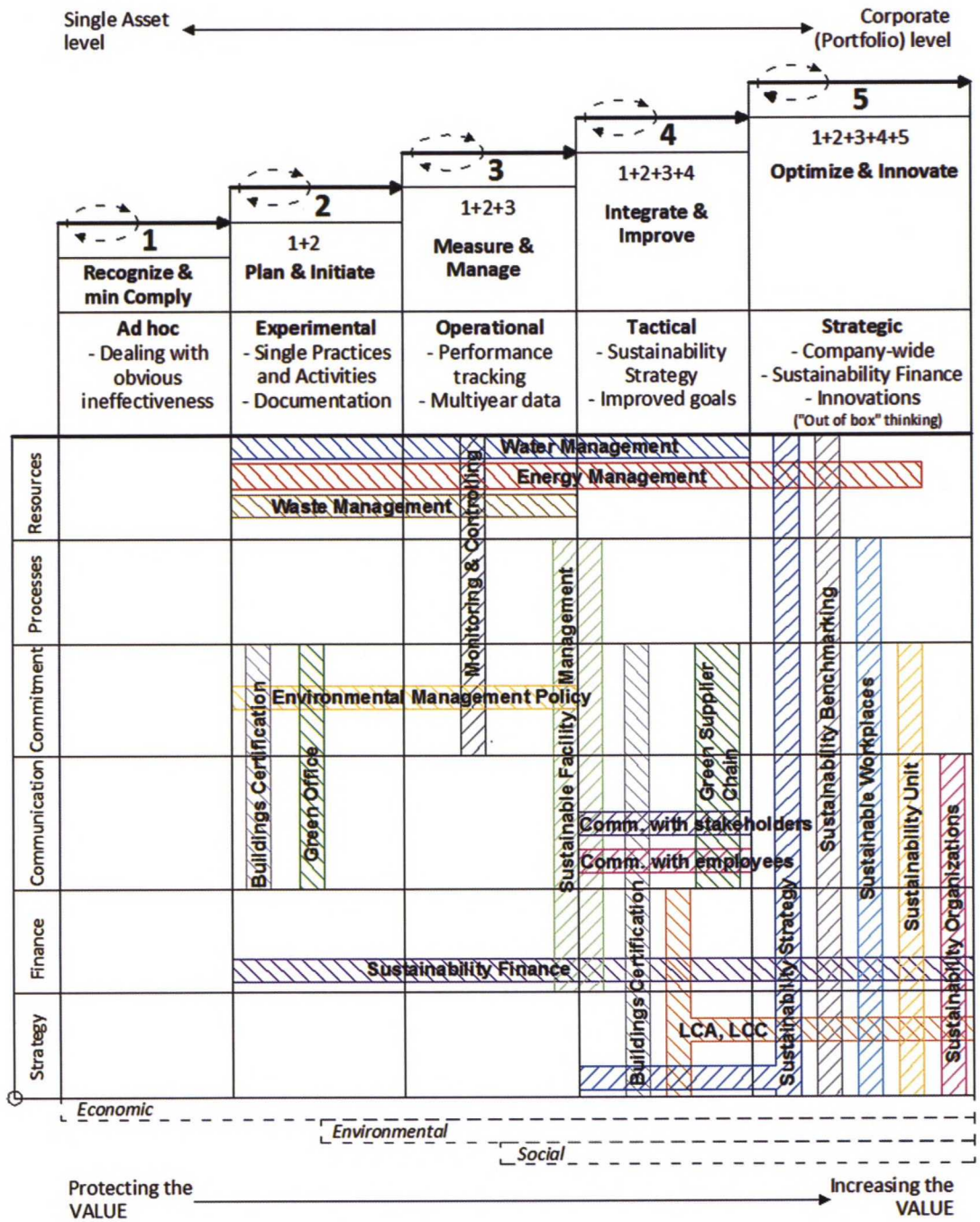

Figure 9 Generic Sustainability Maturity Model for Corporate Real Estate

[2] AutoCAD is software for 2D/ 3D design and drafting.

Some modifications to the structure of the model were made in order to improve it in accordance with respondents' suggestions:

- Expert C suggested including the triple bottom line to the model in order to demonstrate value creation by sustainability. It was explained that in the beginning the driver is economic incentives, at later maturity levels environmental concerns are more important. Social aspects are included at the highest maturity levels when company aims at everyone's commitment and full responsibility.
- Company P2 suggested substituting 'Governance' dimension with 'Commitment', which refers to level of responsibility that every person has at the company. In the beginning people, working with Sustainability are most motivated to implement new practices and take responsibility for that. At later stages, management level also gets committed to sustainability, and employees are engaged as well. At the highest maturity level, commitment refers to full awareness and responsibility of every single employee. In this respect Commitment differs from Governance; however, it better describes the nature of sustainability management and supervision at the company. It can be argued that sustainability begins from management level commitment because sustainability-related decisions are made at strategic level and later on are implemented by sustainability specialists. However, demand for management commitment is usually initiated by sustainability specialists that stimulate sustainability advancement.
- Company RE noted that each maturity level contains all of the previous ones i.e., level 3 unites level 1 and 2. On one hand, it indicates that it is not possible to achieve the highest level if there are inefficiencies in the previous levels. On the other hand, doing well at the basics leads to greater maturity.
- Although each maturity level consists of the previous ones, bank B2 perceived that regular updates are required at each level because they include different sustainable practices. Expert C provided an example to illustrate this concept. If a new energy saving system is about to be installed, the decision is mostly likely made at level 5, but the need for it arises from level 1. It then goes through levels 2-3 until level 4, where integrates with existing practices, and improves the overall result.
- In chapter 3, 'value' was defined as property value, however, findings from empirical study indicated that this concept should consist of multiple components. Company P3 recommended emphasizing the meaning of 'value' creation by the means of sustainable practices i.e., demonstrate why companies should strive for greater real estate sustainability maturity. Analogically, in KPMG report it is noted that most companies are willing to commit to sustainability only when positive effect of environmental and social aspects is proved on financial results. (KPMG, 2012). For this reason, the triple bottom displays the components of value at each sustainability maturity level, from the beginning up to the top of maturity.

Figure 9 demonstrates that the generic model consists of the most typical sustainable real estate practices at the interviewed companies. These practices are further explained in the next chapter.

5.5 Sustainable Real Estate Practices

This section describes the most typical real estate practices, included in the generic Sustainability Maturity Model for Corporate Real Estate.

5.5.1 Determination of the most typical practices

There is a great variety of practices at the interviewed companies, therefore, during the meetings they were extensively discussed in order to find out what makes corporate real estate sustainable. Figure 10 illustrates that there are eighteen most typical sustainable real estate practices, identified in the empirical study.

Figure 10 The most typical sustainable real estate practices at the interviewed companies

These typical practices were identified in the interview sessions and after them, reading the transcripts of records and searching for common patterns. Glaser and Strauss (2010) emphasize that there is a necessity to select only the relevant information when creating general concepts. Besides, even vital observations that do not fit the general paths must be ignored in order to sustain the credibility of the theory. For this reason, practices with similar purpose are grouped to bigger, typical categories in order to generalize them. For instance, *energy-efficient lighting* and *energy-saving computers* are assigned to the same typical practice *Energy Management* and are not displayed twice. Findings, which do not "fit" in the typical categories, are separately reviewed in the research summary part, Chapter 5.7.

To explain how the "location" of each typical practice in the model was determined, one of eighteen typical practices, *Energy Management*, is analyzed as an example. Table 6 provides a sum of all *Energy Management* practice occurrences at the interviewed companies.

Table 6 Analysis of *Energy Management* practice

Energy Management	1	2	3	4	5
Resources	RE	B1 C P2 RE	B2 P1 P3 R RE T	B1 B2 P1 P2 PA RE T	B2 P1 P2 PA
Processes		P3	P3 R	T P2	P1 P2
Commitment		P3	P3 R	T P2	P1 P2
Communication		P3	P3 R	P2	P1 P2
Finance		P3	P3 R	P2	P1 P2 PA
Strategy		P3	P3 R	P2	P1 P2

It can be observed that at majority of the interviewed companies, this practice is at Resources/ Levels 3-4, the second greatest at Resources/ Level 2,5. Therefore, "location" of the typical *Energy Management* practice in the generic model is designated at Resources/ Levels 2-5 and is delineated by red frame. Determination of other typical practices 'locations' in the generic model was done analogically and is displayed in Appendix C.

5.5.2 Description of the most typical practices

Glaser and Strauss (2010) assert that it is important for external users to understand each element of the model to be able to apply it successfully in practice (Glaser and Strauss, 2010 245 p.). For this reason, previously enlisted typical practices must be described in order to limit possible misinterpretation, and increase potential of the generic model.

Water Management. At the base level, water management is clearly related only to resources dimension. From all companies point of view, the greatest concentration is at Resources/Level 3, the second greatest at Resources/Levels 2,4. Therefore, interviewed firms are mostly focused on measuring and managing water consumption, but there is a tendency of moving towards integration and improvement level, based on overall distribution of the *Water Management* practice. Some respondents even pointed out that water is not a crucial question in Finland because there is no shortage in water supply and the quality of water is good. Exceptionally, at company P2, water management practice is assigned to higher maturity levels, and thus is more integrated and involves all six dimensions.

Waste Management. At most companies this practice is related to resources dimension. At company P2, waste management is at optimize and innovate level, and thus contains of all six dimensions. P2 shared experience of developing waste management system at the company: *"we started with the material available: Kyoto protocol, long term goals and figures of our own"*. For company R waste is a crucial issue which is managed in a complex way throughout all dimensions, although it is at maturity level 3. From all companies' perspective, the highest density of waste management practices is at Resources/Level 3, the second greatest at Resources/Level 2.

Energy Management. Energy management includes issues, such as green electricity, lighting, heating, air-conditioning and equipment energy usage. Most companies claim this practice being at Resources/Levels 3, 4. It can be noted that the majority of firms measure and manage energy consumption, also integrate and improve it, as a result. The significance of this practice is extremely high in production companies because they consume tremendous amounts of energy on production sites. For example, Production Company P2 claims: *"our business is very energy-intensive, so we have been focusing on optimizing energy use so that as little as possible would be wasted"*. However, energy consumption at other buildings (that were regarded as corporate real estate in the interview) is relatively small, and thus is at level 1-3. The importance of energy saving, especially in terms of lighting and equipment optimization, is also crucial for Retail Company R. However, this company has a particularly large real estate portfolio which makes it hard to integrate and improve energy management in all buildings. For this reason, it is placed at measure and manage level, although involves all six dimensions. Meanwhile, regular office users pay much attention at energy saving, because the proportion of consumption is higher in this type of premises. Their practices are

comprehensive, multifarious and belong to the highest maturity levels. However, company T notes that energy consumption is not so straight forward because *"it depends on what kind of operation you have in your own premises, what you have outsourced i.e., somebody else consumes the energy"*.

Monitoring and Controlling. This practice contains continuous energy, water and waste management processes, their supervision, performance tracking, data collection and analysis. Energy audits and energy benchmarking are also assigned to this typical category. At most companies, it is at Resources, Processes, Commitment/ Level 3. The purpose of monitoring and controlling at production companies is to collect data and calculate the consumption. Company RE states: *"we gather cost and usage data about three the most important and easily available parameters: energy, heating, water"*. This practice is present at all companies, but the scope of activity highly depends on the goals to be achieved. For instance, company P2 claims: *"we are collecting data on daily basis because we have set high target for ourselves"*. Companies that have set focus on getting savings from real estate and improve their overall performance, have established advanced monitoring and controlling systems, and therefore are at level 4. Public Agency PA emphasizes: *"we follow all the numbers in every single building every month and have over 30-year statistics."*

Buildings Certification. This practice refers to certificates for buildings such as LEED[3] and PromisE[4]. Most international and listed companies prefer LEED certificate because it is world-wide accredited and recognized. Company P2 states: *"our future plan is to have all our buildings LEED certified because it will be the market leader world-wide."* Company RE notes that *"certification is a good way for us to document information and know if everything is in place"*. Additionally, *"nowadays most of users have heard about certificates"*, and thus it is easier to involve them into sustainability activities. PromisE is a Finnish certificate, more typical at companies that operate only in Finland. PA affirms: *"we use Finnish certification system PromisE for new construction"*, and adds that *"certification is an easy way to show our results outside to stakeholders and benchmark the systems between companies"*. Company P3 does not regard building certification as crucial issue now, but claim that *"if we needed to build a new office building or site, most likely we would apply LEED"*. Interestingly, it noted that LEED certificate could be used for its production marketing purposes. Therefore, certification is the most important to Public Agency, Real Estate Company and banks, but not so much to production business because their focus is on product-related issues. Certification-related issues were broadly discussed in Chapter 2.1, and it was emphasized that certification is advantageous only if desirable features of the building are maintained appropriately.

Sustainability Organizations. Few interviewed companies emphasized the importance of participation in sustainability organizations or being there, where crucial questions are discussed and decisions are made. This typical practice also includes partnership and collaboration with these organizations. Company T claims that it is important to be involved in the *"discussions, influencing regulation setting and standards"* in order to

[3] Leadership in Energy and Environmental Design (LEED) is green building certification program created by the United States Green Building Council (USGBC). It is a comprehensive rating system for new construction and existing buildings. (World, 2013 109 p.)

[4] PromisE is an Environmental Assessment and Classification System for Residential, Office and Retail Buildings in Finland, both existing and new buildings. (VTT, n. d.)

know what is the next thing to be done. Similarly, company P2 affirms, *"We need know what the future trend is"*. However, an interested remark is given by bank B2: *"there are quite many of these green issues going on, so you cannot be a part of everything"*. That is why sustainable company carefully selects organizations to participate in and assigns this practice to the most advanced maturity level – Communication, Finance, Strategy/ Level 5.

Sustainable Facility Management. Companies tend to call this practice either Green or Sustainable Facility Management. Both have the same meaning and are linked to one category. For the reason that facility management involves many activities, it contains many dimensions in the model. The highest frequency of this practice is at Processes, Commitment/ Level 4. It can be noted that at higher maturity levels, strategy dimension is also included because sustainable facility management is a strategic decision. The second greatest density is at Processes, Commitment, Communication, Finance/ Levels 3, 4. This implies that sustainable facility management is an integrated practice which improves the overall performance. Additionally, it is a process which aims to ensure implementation of other sustainable practices that companies are committed to. Company T explains that selection of service providers is a long process: *"we not only look at the written proposals, but also organize discussions with them"*. This implies that sustainable facility management is also a manner of communication with external service providers. Public Agency PA affirms having defined economic, environmental and social requirements for service providers. Interestingly, company T states that sustainability makes only about 10% of service provider selection criteria because it is one of many attributes.

Green Supplier Chain. The majority of sustainable companies have high requirements for services and products that external firms provide. In the interviews respondents called it Green Supplier Chain, Sustainable Supplier Chain or Requirements for Suppliers. It was decided to unite all similar terms to Green Supplier Chain. This practice is a part of external communication and therefore stands at Communication/ Level 4. Company T notes that company has to be sustainable in order to set demands for its supplier chain: *"you have to be quite far down the road before can start asking others"*. Besides, many companies believe that service or products providers should be committed to same high standards of sustainability as the company itself. Company T observes that demands have positive effect on the chain: *"our collaborators start to have expertise as well"*. The second highest concentration of this practice is at Commitment/ Level 4, which indicates that ensuring high quality from external provides improves the overall result. For this reason, bank B2 has a key performance index for service providers and evaluates their performance monthly.

Communication with stakeholders. This practice involves interaction with stakeholders and reporting on performance, including standardized (i.e., GRI[5]) and standard-free reports. According to most companies, this practice belongs to Communication/ Level 4, and this indicates that communication with stakeholders is related to integration and improvement of the results. For instance, company P2 claims: *"in our company, real estate and sustainability departments report on sustainability activities together in order to provide balanced overview"*. Production Company P3 emphasizes that standartized sustainability reporting is a requirement for listed companies because their communication is focused on

[5] GRI (Global Reporting Initiative) is a non-profit organization that provides all companies and organizations with a comprehensive sustainability reporting framework to promote economic, environmental and social sustainability (Global, n.d.)

owners and investors. There is no requirement for non-listed companies, however, usually they apply own corporate responsibility reporting forms or follow GRI guidelines voluntary. However, company P1 notes that *"communication is much more than just reporting"*. External communication is often used for marketing because *"sustainable brand is much more visible"*, according to bank B1. Analogically, company T affirms: *"our green credentials should be more visible to stakeholders"*.

It can be observed that Public Agency PA relies on customer satisfaction because *"satisfied customer on a long-run is the best solution to survive"*. It even has adjusted corporate values according to the ones, coming from the customers. Communication with stakeholders is extremely important also to bank B2: *"our strategy is very clearly based on stakeholder dialog"*. In order to prepare proactive solutions, it must be regularly renewed because *"tomorrow you might be facing totally new demands"*. Company P1 admits that its engagement with stakeholders could be more proactive: *"successful communication is being in touch with the stakeholders before any communication is needed"*. Company RE notes that in some cases communication is not necessarily related to high maturity level because *"company can communicate things even at the starting point because it is important to say where you are in your process"*. That is why *Communication with Stakeholders* is a tactical action.

Communication with employees. This category includes employee engagement and training, internal communication between units and everyone's commitment, as it was described by the interviewees. The practice is at Communication/ Level 4, and this implicates that most companies regard communication with employees as tactical issue, which aims at full commitment, integration of the activities and improved result, as a consequence. Expert C argues that *"sustainability is not present if there is no communication"* because it is a method of sustainability implementation to the company. To illustrate, company RE affirms that communication with employees *"helps to do something not only for our customers, but also in our own office"*. Besides, *"people are more willing to accept the change if they know what is happening"*, according to expert C. One of employee engagement purpose is to demonstrate that everyone contributes to consumption, and therefore might take part in reduction activities. Bank B2 observes that personnel often think that *"big things"* are happening somewhere and *"there is nothing I can do"*. That is why company should make it visible that *"even I, single employee, can make my own part"*. Expert C observes that *"if people are taking part of something, they feel the ownership of that and act accordingly"*. Companies appreciate employees' initiatives and input in sustainability development. For instance, company P2 investigates employees' ideas and implements them, if they have *"remarkable benefits"*. In bank B1 sustainability-related experience is shared within units in order to spread good practices. Bank B2 emphasizes that it is good to use inner benchmark to compare *"your own performance to fellow workers to get good direction both in business and your behavior"*. However, company P2 remarks that *"the most difficult thing is to make all our people think the same way"*. For this reason, Public Agency PA affirms that personnel must be given instructions in order to *"learn how to use buildings in correct way"*. Company P2 suggests training employees on-site because *"the best way to give knowledge is to show everything practically"*. Company P3 publishes *"energy saving tips and articles about our savings that have been done in some locations"* on intranet, so that everyone can realize: *"I can do this as well"*. Company T affirms that it should be easy to be green in the office: *"user instructions should be on the spot the second you are doing something"*.

It is also important to note that sustainability plays significant role in recruitment process. Bank B2 has observed that *"there is an increasing amount of questions, regarding sustainability, among potential employees"*. Likewise, bank B1 claims that *"sustainability matters when we fight for the best talents because they choose us for that"*. For this reason B2 affirms: *"the one, who wants to get the best talent in, has to take sustainability seriously"*.

Green Office. This practice refers to WWF Green Office[6] labeled premises at the interviewed companies. The purpose of this system is to create better working environment for employees and engage them to sustainability practices in everyday activities. On one hand, company P1 observes that *"in everyday life employees see that there are certain rules that we are following"*. Besides, *"people that are not involved in the "heavy" part of the business (i.e., accountants, bookkeepers), feel happy for contributing at least a little bit"*. In bank B1, the whole office and different departments participate in Green Office. On the other hand, WWF Green Office concept is still not available in many countries, and this causes some difficulties for international companies. B1 claims that *"our branch offices are doing the same measures as we, even though they do not have WWF behind them"*. Therefore, this practice cannot be applied corporate-wide in international companies and has limited maturity level. In the generic model, it is placed at Commitment, Communication/ Level 3.

Sustainable Workplaces. Although interviewees called this practice Sustainable, Green or Innovative Workplaces, all have the same meaning and are linked to one typical category. In comparison with Green Office, it is physical-features related concept that includes issues, such as office layout, workplaces arrangement, furniture and other. Company P2 notes that *"innovative workplaces are nowadays a model of Nordic responsibility*". Public Agency PA has ongoing workplaces improvement projects to find new ways of working. Bank B2 has already changed workplaces so that *"people interact in a new way when they do not sit next to the same person every day"*. As a result, sustainable working environment increases employees' efficiency: *"there are no empty places and everyone can choose it according the mood"*. For the reason that this practice is situated at Strategy, Finance/ Level 5 at most companies, it can be concluded that sustainable workplaces is a strategic decision. This implication can be supported by reference to H. Ahnström's (Nordic, 2013) presentation at Nordic GBC Conference 2013. He affirmed that the meaning of workplace has rapidly changed during the last decades. Real estate has become a place where innovations are created and applied, because today people have higher demands for working environment. Actions, responding to these requirements, come from companies strategic decisions to establish sustainable workplaces. This insight is affirmed by bank B2: *"it must be true what you do"*. Employees not only have increased the requirements, but are also conscious about implementing sustainability practices decently.

Sustainability Unit. This category refers to organizational unit that is responsible for sustainability-related issues at the company (interviewees called it Sustainability Unit, Environmental Team or Innovations Team). Generally, it indicates that company is commited to sustainability and has professionals, responsible for sustainability management. However, maturity level of this practice varies in different companies, depending on its role in corporate real estate. Companies, declearing significance of real estate to their businsesses, assign it to Commitment, Communication, , Finance, Strategy/

[6] WWF's Green Office is a Finnish environmental management system for offices (WWF Finland, n.d.)

Level 5. On contrary, sustainability unit in production companies is usually responsible for product sustainability, not for real estate. For intance, company P1 claims: *"our sustainability department does not do much with real estate, and real estate unit does not do much with sustainability"*. Interestingly, company P3 claims that *"there is no sustainability department in our company because sustainability is not one person's or department's task, it needs to be managed by different functions and people"*. Therefore, non-existent sustainability unit might simply indicate that expertise in not concentrated in one department, but is spread along various units.

Sustainability Finance. This practice involves aspects of sustainability finance, such as sustainability financial impact analysis and sustainable investment. The greatest density is at Finance/ Level 5, the second highest also at finance dimension, but lower levels – Finance/ Levels 2-4. The distribution of this practice indicates that analyzing and planning finance is a comprehensive activity, which involves not only finance, but other dimensions as well. For this reason, sustainability finance belongs to the highest maturity level at most of the interviewed companies.

Payback time of sustainability investment is one of the most important issues, discussed in the interviews. Bank B2 claims: *"we do not think so much about investment costs, but more about life-cycle costs"*. On contrary, company P3 affirms that investment payback time is crucial criteria when discussing it with management group: *"it must be based on business case and market analysis or discussions with personnel"*. Analogically, company P1 claims that company has to look at payback times of sustainable investments because *"you cannot suggest doing something only because it is nice"*. Company P2 adds that if investment payback time is more than 5 years, it is difficult to get financing for it, therefore, good business case is needed when convincing management group. Company P3 explains that in cases of necessity, investments are done without much consideration: *"if it is a "must", we do not try to figure out what is the benefit or payback time because we just have to do it"*.

Another important issue is evaluation of sustainability effect on financial results. Most companies claim that the relationship is very difficult to calculate because there are figures, such as employee satisfaction or brand value, which cannot be easily measured in monetary terms, according to company T. However, Real Estate Investment Company RE affirms that sustainability has positive effect on property value: *"return on sustainability is a game of 3 parameters: rents up, costs down, yield up"*. Surprisingly, company P3 has also done Sustainability Financial Analysis, but the outcome was that *"in our company, the focus is not on real estate, but on the product development"*.

LCA (life-cycle assessment), LCC (life-cycle cost). This category consists of life-cycle assessment and life-cycle cost assessment practices that usually go hand by hand because building cost over the life cycle is a great concern, related to real estate assets. Concept of 'Green Portfolio Review' belongs to the same typical category because it is aimed at recognition of property-related weaknesses and risks to be eliminated. It also includes investigation of possibilities to make company's property portfolio stronger by applying innovative solutions. Company P3 does *"regular condition checks"* to find out *"what should be done to keep premises in good condition"*. Analogically, company P2 remarks: *"maintaining buildings as well as possible, makes their life cycle longer"*. Public Agency PA has a tool for *"life-cycle costs assessment already in planning phase"*, and company P2 notes that *"thinking of renovation begins from sustainability issues"*.

Similarly, company T says: *"when considering systemic changes of the buildings, life-cycle cost is something that we definitely want to do."* Therefore, property life-cycle assessment and life-cycle cost assessment is a comprehensive practice which stands at Finance, Strategy/ Level 4 and Strategy/ Level 5 in most companies.

Life-cycle assessment cannot be distinguished from financial calculations, because investment planning requires long-term perspective. However, company P3 asserts that *"some investments cannot be justified only by payback times"*. Similarly, Public Agency PA remarks: *"some of our investments are not profitable because not only economic value is important"*. It is also remarkable that at production companies, the focus is on product life cycle, and thus real estate related practices are at maturity level 2: *"major refurbishments in our properties are very typical (i.e., roof refurbishment)"*, claims Production Company P3.

Environmental Management Policy. This practice refers to general environmental management policies that include real estate or separate real estate management policies. There were a few companies having separate environmental policy, one of respondents has Corporate Social Responsibility Policy, which is more comprehensive document than Environmental Policy. However, for generalization purposes it was decided to unite them to the same category. Environmental Policy is marked at Commitment/ Levels 2, 3. Therefore, it can be concluded that it is a regulatory practice, which defines the roles of persons and units, responsible for sustainability. Public Agency PA notes that there is a possibility to create own quality system, however, *"it might be very subjective because it underlines good things of your own"*. Therefore, they chose ISO 14001 standard[7] as the most suitable because *"common system requires showing everything, even things that are not keen on showing"*. Company T argues that *"ISO50001-based Energy Management System may be too heavy for the office use"*. Company RE also has its own, standard-free Environmental Policy. Company P3 claims that their environmental or social impact analysis implied that real estate is not in the core area, that is why their programs are focused on production facilities. Similarly, company P1 explains that *"we have Sustainability Policy, but it does not regulate real estate"*.

Strategy. This category includes strategy-related practices at the interviewed companies: sustainability strategy, sustainable real estate strategy, CSR strategy. Undoubtedly, these activities are of different content and scope, however, the purpose of planning is similar, and thus it was decided to unite them to one typical category. The greatest concentration is at Strategy/ Level 5, the second highest – at Resources, Processes, Commitment, Communication, Finance/ Level 5 and Strategy/ Level 4. It can be also observed that at most companies, *Strategy* is at the highest maturity level and involves all six dimensions. Great maturity of this practice is explained by bank B2: *"we have one strategy for our company"*, and this indicates that sustainability-related issues are integrated in the whole business strategy. This bank also provides the reasoning: *"sustainability needs to be embedded in our business: the way of doing business and the business thinking"*. Similarly, there is no sustainability strategy as a separate document in company P3 because sustainability is an integral part of their business strategy. Sustainability scenarios are also significant for strategic analysis and decisions. Company P3 claims: *"we want to take proactive actions because we know that in a long run legislation will change and we will*

[7] ISO 14001 is a set of criteria for environmental management system that can be certified to this standard (ISO, n.d.)

need to change as well". However, real estate is not a priority in production industry, and it is not managed at corporate level in these companies. The lack of holistic approach is well illustrated by company P1: *"all our premises have their own targets; there is no corporate real estate strategy at our company"*.

Sustainability Benchmarking. Most companies benchmark their achievements in energy, water and waste management, but a few compare the performance in sustainability. This practice is regarded as very advanced and belongs to maturity level 5 and involves all 6 dimensions. Sustainability Benchmarking requires analyzing each component of the "big picture" separately to find out what are the keys to business success. Company P1 emphasizes the significance of sustainability benchmarking: *"we should not be focused only on what we are doing, but watch what is done on the global level"*. Public Agency PA declares benchmarking performance against the market in order to ensure that company has right business orientation: *"we need to find out if we are as efficient as market"*. For banks it is important to compare results with peers and competitors in order to forecast the changes in the market and be able to take proactive actions. Bank B2 emphasizes that sustainability benchmarking is a complicated process which requires collecting information from many sources. Company RE also declares relying on multiple information from public sources and databases.

5.6 Evaluation of the Model

This section provides interviewees' feedback on the model and possibilities for its improvement. Summary of the comments is illustrated by Figure 11.

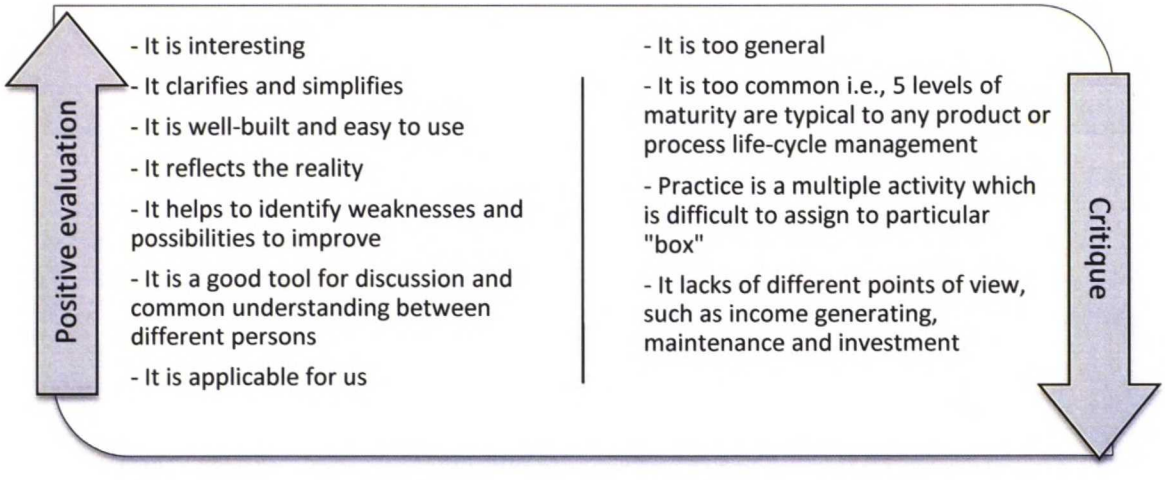

Figure 11 Feedback on the Sustainability Maturity Model for Corporate Real Estate

Some companies told that the model is clarifying and simplifying framework, which enables displaying different things in one place. It was regarded as a useful tool for identifying existing problems and recognizing the possibilities to improve: *"it shows where we are now and where we should go"*, bank B2 noted. However, a few interviews noted that structure of the model is too common, because might be applicable to development of any product or process. Company P3 claimed that *"it is a common framework in life cycle*

management of any issue, because these five steps are also typical to quality, product portfolio, process or operations management". Still, from researcher's point of view, this kind of layout is logical and easy to understand for user that does not have relevant background. Companies B2, P1, R and expert C state that it is well-built, logical and rational framework that is easy to use and understand even by inexperienced users. Additionally, companies B2 and P2 claim that it is a usual, easily understandable model, which covers most of real estate issues, indicates the current situation and possibilities to improve. Companies P2 and R2 regard the model as a good tool to evaluate level of the Sustainability and real estate at the company. Company P1 affirms that this model *"simplifies the thinking and understanding of sustainability content, priorities and goals"*. Furthermore, *"it is a reasonable way to manage big issues dividing them into smaller parts first and then putting them together"*, company P1 adds. In contract, company RE noted that it is hard to assign practices to particular boxes because *"practices are complex and difficult to divide in smaller parts, and thus it is complicated to defining right levels and dimensions"*. However, this drawback is advantageous when demonstrating actual development of real estate sustainability maturity: *"in practice everything happens in the same order as in this model: in the beginning you start with a little and aim to improve the practices and expand"*. Analogically, companies B1 and T affirm that the model clarifies and displays different things in one place. Therefore, it can be concluded that "location" of real estate practices in the model is complicated to designate, however the filled model is a useful tool for sustainability maturity assessment.

It was observed that people with different backgrounds and responsibilities might fill the model differently. Therefore, it is a useful technique to hold discussion between different departments and persons: *"it is a useful tool when striving for common understanding with people, having different points of view"*, companies B1 and P2 state. Additionally, expert C notes that *"the model is useful on the communication side when making the board understand what is the aim of sustainability"*. Therefore, model, filled with company-specific practices, can be used for demonstration purpose in negotiation processes, strategy building, finance planning or employees training.

In the interview session, it was observed the model is limited possibilities to display practices in motion or practices that are under development at the moment. It is a case at some companies and was discussed in the interviews; however this analysis tool requires assigning such practices to anchor levels and dimensions that indicate current situation. Nevertheless, company RE observed that this model *"allows supervising actions happening simultaneously at different levels"*. Also, it demonstrates how each real estate practice contributes to corporate sustainability: *"it shows how improving on small things can increase overall maturity"*, expert C affirms. However, Public Agency PA claimed that *"this model is on too common level and lacks different points of views"*. It was suggested including three processes of value circulation: generating income from rents, expenses on property maintenance and utilities, investment in refurbishment or new construction. Although this is a meaningful recommendation, it is not relevant to the rest of the interviewed companies. Therefore, it can be concluded that this model suits best ordinary office users that focus mostly on building maintenance and refurbishment.

5.7 Research Summary

This part sums up the empirical study and provides implications on the findings. It also discusses overall sustainability maturity at the interviewed companies and provides a summary of meaningful observations that were left apart from the generic model.

The initial model was significantly improved in the interview sessions with some major Finnish companies, recognized for their environmental work. The major modification was including the triple bottom line in order to emphasize the value creation at each maturity level. This line also displays stakeholders' engagement and commitment to sustainability at higher maturity levels, because in the beginning all practices are related to physical issues of the properties. Initial 'Governance' dimension was substituted with 'Commitment', which describes the subject better. It was also observed that every higher maturity level contains all previous ones i.e., sustainability maturity is built on firm foundation. Besides, maturity development is not always a linear process, but consists of regular updates at each level.

An extensive discussion of 'value' that sustainable real estate generates for company implied that its perception varies in companies form different industries. Banks claim that value contains different sorts of value, such as financial, added value for the customers, brand value, transparency and trust. Production companies affirmed that the meaning of publicly-listed company is to create the financial value for owners. It was also observed that in the beginning, value is related to small, saving-oriented actions; at top it is more sophisticated and complex, and thus generates multifarious benefits for the business. It is important to point out that sustainability must be beneficial, and thus sustainability investment requires business case approach. Also, when considering several investment options, sustainability is among the criteria, but not the main one.

Figure 12 gives an estimation of corporate real estate sustainability maturity at each of the interviewed companies. It can be noted that sustainability is at advanced level at banks, even though the basic saving practices belong to level 3 and are used for continuous measuring and monitoring purpose. A wide extent of tactical practices is applied to improve the performance in both banks. Many of bank's B2 practices from strategic, financial and communicational dimensions are at level 5, and therefore overall sustainability maturity is at level 5. Bank B1 is at 'integrate and improve' level.

Observations from the interview with Public Agency PA indicate that the majority of the practices are concentrated at maturity levels 4-5, at strategy and communication dimensions. Energy, water and waste management practices belong to lower maturity levels. Some of the practices also go through all maturity levels, and this indicates that Public Agency PA applies corporate-level management.

Most sustainable real estate practices at Telecommunications Company T belong to maturity levels 4 and 5. This implies that the company has integrated the practices for overall result improvement, and also applies innovative ones to optimize the performance.

Real Estate Investment Company RE differs from others because it looks at real estate from investor's, not user's point of view. This firm is situated at 'integrate and improve' level, because managing real estate at this level is optimal solution in respect of returns for investors.

Practices at production companies are more scattered, but the greatest density is at level 3 at companies P1 and P2, and at levels 2-3 at company P3. It indicates that the purpose of implementing these practices is to measure and manage the performance. The reason for this is that real estate is not a focus area in these companies, as previously discussed. These companies do not perceive real estate as risk generator, and thus it is not a priority for these firms. Nevertheless, real estate is involved in overall financial analysis and strategic planning and that is why most practices contain of all six dimensions, despite relatively low maturity status. It might be concluded that productions companies, ranked in Sustainability indices as industry leaders, do not necessarily possess sustainable real estate practices.

Findings from interview at Retail Company R imply that there is a lack of comprehensive real estate management. Basic resources-saving practices still belong to lower maturity levels, whereas the density at communication, finance and strategy dimensions is centered at levels 4-5. Therefore it can be concluded, that stakeholders engagement and marketing are the key activities at Retail Company from sustainability point of view. It is important to mention that especially large company's property portfolio complicates sustainability progressing to higher maturity levels. Overall company's sustainability is at 'measure and manage' maturity level and is heading to level 4.

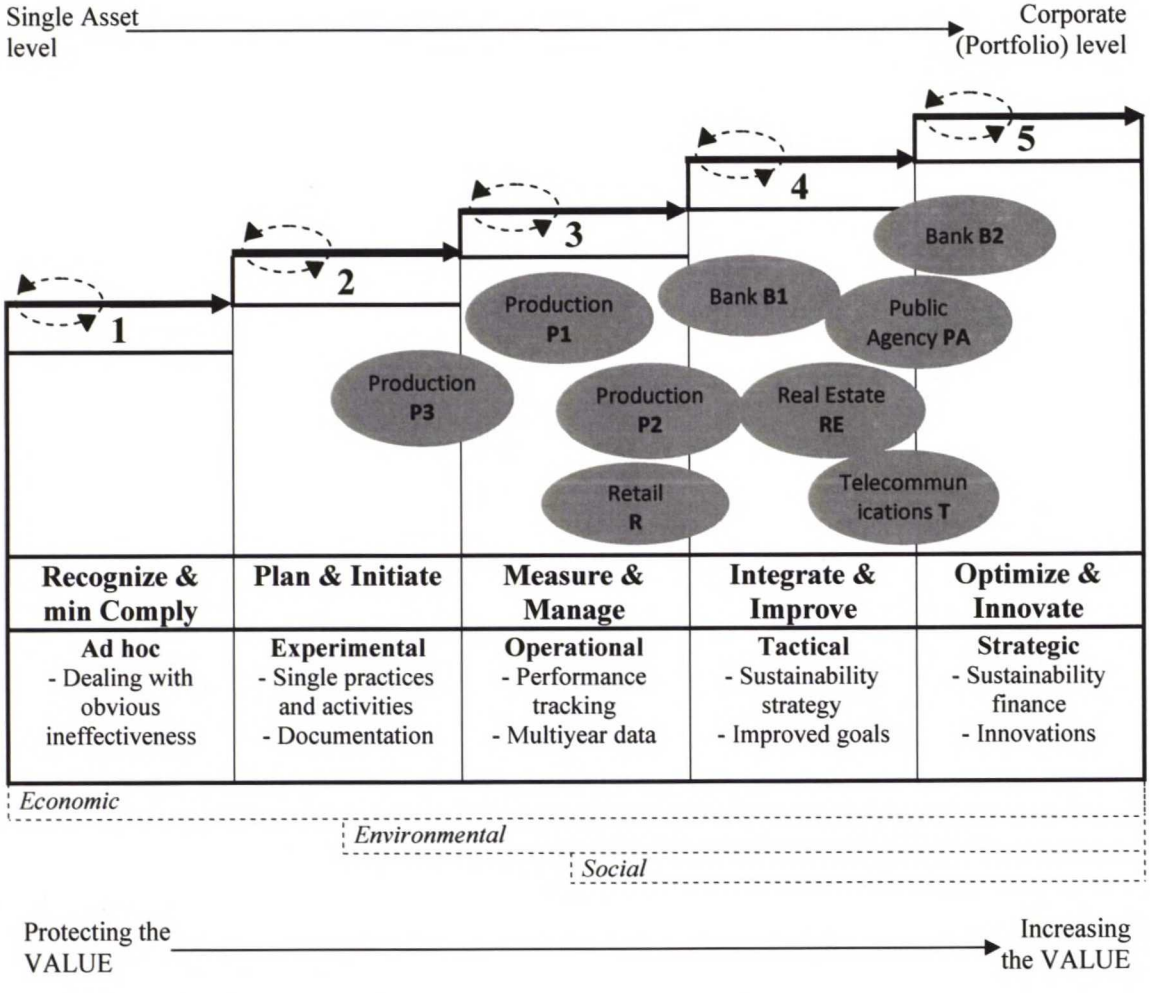

Figure 12 Sustainability maturity at the interviewed companies

Some other viewpoints that were not included into the generic model should also be discussed. In literature review, it was noted that companies, coming from various industries, tend to have different sustainability strategies. The same idea was brought into discussion during the interview with company P3: *"sustainability aspects, typically important for the real estate, are different in different companies, functions, units and individual actions"*. This implication was proved to be true in this study because understanding of sustainability in real estate various in different companies. This research also demonstrated that some companies even do not recall the first steps of sustainability development because they integrated sustainability into their business years ago, and are much further now. Similarly, some interviewees have been working at particular companies for decades and do not know how sustainability is managed in other companies, and cannot properly compare themselves with peers. Moreover, most companies do certain things even without thinking, because sustainability has become a part of everyday life in Finland. Some practices cannot be identified as sustainable ones because they are considered to be common activities, applied by most companies. On contrary, one interviewee declared that real estate market is not ready for more advanced practices yet. It refers to the statement that it must be beneficial to be sustainable, and if more advanced practices do not generate more advantage, they are postponed to the future.

6 Conclusions

The objective of the thesis was to suggest the generic Sustainability Maturity Model for Corporate Real Estate that would facilitate sustainability assessment and management in corporate real estate. The research process was implemented in accordance with the Grounded Theory approach. The initial model was constructed at the beginning of the study, based on findings from literature review, and further developed in the interviews. The theoretical sampling of 11 interviews with major Finnish companies, acknowledged for their achievements in sustainability, was used to collect research data. In the interviews, a wide range of sustainable real estate practices was discussed to identify 18, the most typical practices, as components of the generic model. The empirical study also suggested improvements for the model structure in order to increase its credibility and applicability.

Sustainability in corporate real estate was broadly discussed in the interviews. All companies stated that these subjects are strongly related, however the understanding of sustainable real estate depends on priorities in different companies. Public Agency, Real Estate Company and banks regard real estate as a core issue of their business. On contrary, production companies focus on product facilities and real estate is not a priority. Nevertheless, all respondents have recognized that sustainability is an increasingly important area in all business fields, and thus its management requires holistic approach. Therefore, some of the interviewed companies have already established indicative tools for sustainable real estate management, others are under consideration of creating such tools.

Comparison of findings from literature review and empirical study implied that there are some similar patterns. Firstly, greater maturity is achieved by multiple sustainable real estate practices because they have different goals. Secondly, high level of practices integration is required for achieving better results. Thirdly, effective communication with stakeholders and full commitment are attributes of great sustainability maturity.

The Sustainability Maturity Model for Corporate Real Estate demonstrates value of sustainable real estate at each of the 'triple bottom line' dimensions. Environmental benefits include efficient resources usage, the least possible life-cycle impact on the environment, sustainable workplaces and other issues, related to physical features of the buildings. From social dimension point of view, sustainable buildings provide employees with healthy and comfortable working environment, engage them to sustainability-related activities, and thus promote employee satisfaction and working efficiency. Sustainable real estate also contributes to economic results because of increased employee working efficiency, savings from utilities, positive effect on rent prices and property market value.

Selecting companies from various industries for analysis of real estate sustainability, was a challenging, but advantageous decision. Observing phenomenon in the heterogeneous context generated valuable insights and contributed to the creditability of the research. However, assumption that the most advanced sustainable real estate practices are mastered by companies, awarded for sustainability, is not always true, because the level of real estate sustainability maturity highly depends on business specifics. Companies that recognize property as significant risk generator, pursue advanced sustainable practices to eliminate weaknesses and benefit from opportunities. If company is focused on product development, the greatest risks and value creation opportunities are associated with production process, and thus real estate is not a priority. It was observed that in most cases

lower maturity practices are aimed at improving company's own processes, whereas the purpose of advanced practices is to provide better service to the customers.

Sustainable corporate real estate practices, belonging to the lower maturity levels, are easier to define and classify. At higher levels, they are more integrated, and therefore more complicated to analyze. Besides, some of the practices (i.e., waste management) are usually defined to lower levels because most companies do not regard it as critical issue. However, this study demonstrated that solid fulfillment of the practice increases its degree of maturity. Therefore, it can be concluded that the level of maturity is approximately equal to the level of fulfillment i.e. well implemented practices have greater maturity.

Personnel are an underestimated area of sustainability development, because many companies still do not realize the essence of everyone's commitment. Nevertheless, this study revealed that most sustainable firms are people-aware and engage them in everything they do. When the communication is at a higher maturity level, it includes both internal and external stakeholders. There is an active interaction between employees and management team on one side, between company, customers and suppliers on the other side. Besides, advanced communication usually involves Sustainability Organizations and society. In addition to this, the interviewed companies have observed that sustainability has become an important issue in recruitment process, because company's sustainability credentials are widely acknowledged by potential employees.

6.1 Applicability

The model, presented in this thesis, provides holistic approach to sustainable real estate practices at the Finnish companies and enterprises, recognized for their environmental performance. For this reason, it can be applied as benchmark for the firms that have just started their journey to sustainability. Those that have already achieved remarkable results might compare themselves with general path and ponder further advancement.

This model is also an indicative self-assessment tool for sustainability maturity. It can be applied by any company to encounter performance inefficiency and potential target areas for improvement. The generic model consists of sustainable real estate practices, and thus indicates the elements of the "big" picture. These elements are usually difficult to identify because of heterogeneity of existing building stock, however, the model provides a benchmark – 18 typical practices, pursued by the sustainable companies in various industries. Certainly, some business-specific modification to generic model should be applied in order to increase credibility of the tool.

As was previously discussed, the model can be applied for internal discussions within different units to agree on common perception of sustainability in corporate real estate. It is also a useful instrument in communication with stakeholders because it displays the current situation, determined goals and actions plan for their achievement in one place. This model reflects the situation is companies that were established decades ago, therefore, it is not directly applicable to newly-created businesses that would most likely be rather sustainable from the beginning.

6.2 Recommendations for the Further Study

Glaser and Strauss (2010) provide argumentation on the completeness of the study. They claim that the author of theory knows best, whether it is finished or needs further development. Traditionally the study reaches the final stage when it achieves all the initially proposed objectives. Of course, the researcher can always attempt at collecting more data, however little value can be gained from this, when the result is already evident. In addition to this, it is important to distinguish what belongs to this particular study and what might a subject of further studies.

Glaser and Strauss (2010) observe that a great part of all theoretical frameworks are rarely further investigated and developed because the phenomena being studied are undergoing continuous change. Sustainability is not an exception because of changes in economics, legislation and society. The significance of present sustainable real estate practices might extremely differ in the future, or new ones will developed to comply with increasing requirements. For this reason, further studies could be conducted on changes in the field of sustainable corporate real estate with an aim to suggest new maturity models.

Additionally, during interviews it was found out that some companies have established sustainability management tools. Investigation and comparison of these models would be an interest topic of other studies because it would provide insights on structure of the sustainability maturity models, in addition to its typical elements.

This research was carried out with companies, coming from different industries, and thus some considerable information was left out of the scope of the generic model. Therefore, further studies could investigate each business field separately to suggest generic models, typical to specific fields. Besides, in this study interviews were conducted with companies and enterprises, acknowledged for sustainability, and findings from empirical study mostly referred to higher maturity levels. For this reason, further investigations could focus on sustainability at lower maturity, which was not sufficiently analyzed in this study.

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Appendix A – Interview structure

Interview themes	Interview questions	Time
Introduction of the interviewer	- Study background - Aim of the research - The structure of the interview	15 min
Introduction of the interviewee	- Previous background - Current roles and responsibilities	
Sustainability & corporate real estate	- Relationship between Sustainability and RE: why, how, to what extent? - What is the best way to measure and demonstrate sustainability maturity of RE?	10 min
Sustainable practices at the company	- What sustainable practices do you apply at your company (in general)? Why? - What are the advantages and disadvantages of these practices?	10 min
Discussion of the model	- Introduction of the model - Mini workshop: filling the model with the previously discussed practices - What is your opinion on the model? - What could be improved?	20 min
Final comments and ideas		5 min
		60 min in total

Appendix B – Interviewee profile table

	Company	Interviewee position	Responsibilities	Interview
1.	PA	CEO and director of Corporate Social Responsibility Corporate Social Responsibility Specialist	- Corporate Social Responsibility - Environmental issues - Corporate Social Responsibility - Environmental Issues	2013.02.04 1h 06 min
2.	RE	Associate	- Analysis of new investment opportunities - Divestment - Environmental issues	2013.02.15 58 min
3.	B1	CFO, Head of Support Functions in Finland	- Business supporting functions	2013.02.15 55 min
4.	B2.1	Head of Group Premises in Finland Operations and Maintenance Manager	- Property management - Technical property related issues and maintenance - Property maintenance - Operations	2013.02.19 1h 04 min
5.	B2.2	Head of Corporate Social Responsibility	- Leading Sustainability unit - Responsible for sustainability related issues	2013.02.06 34 min
6.	P1	Sustainability and Supplier Compliance Director, Sustainability and HSEQ	- Sustainability issues - Supply chain management - Supplier compliance	2013.02.21 1h 20 min
7.	P2	Property Manager, Corporate Real Estate	- Property management - Property maintenance	2013.02.25 1h 11 min
8.	P3	Real Estate Manager Technology, Energy and Environment	- Property management - Property maintenance - Product and process development - Energy management - Environmental issues and communication	2013.02.01 1h 23 min
9.	T	Head of Workplace Resources Sustainability, Sustainability Operations	- Facilities and real estate management - Sustainability issues	2013.02.14 58 min
10.	R	Environmental Manager	- Building new CSR data management system for the whole company - Energy management	2013-03-11 1h 02min
11.	C	Environment and Quality Manager	- Management systems and sustainability of operations - Business development of sustainability services - Employees engagement in business development	2013.02.26 47 min

Appendix C – Sustainable real estate practices at the interviewed companies

Water Management	1	2	3	4	5
Resources	PA	B1 RE	P1 P2 RE	P1 P2	P2
Processes				P2	P2
Commitment				P2	P2
Communication				P2	P2
Finance				P2	P2
Strategy				P2	P2

Waste Management	1	2	3	4	5
Resources	PA	B1 PA	PA R T		P2
Processes			R		P2
Commitment			R		P2
Communication		PA	R		P2
Finance			R		P2
Strategy			R		P2

Energy Management	1	2	3	4	5
Resources	RE	B1 C P2 RE	B2 P1 P3 R RE T	B1 B2 P1 P2 PA RE T	B2 P1 P2 PA
Processes		P3	P3 R	T P2	P1 P2
Commitment		P3	P3 R	T P2	P1 P2
Communication		P3	P3 R	P2	P1 P2
Finance		P3	P3 R	P2	P1 P2 PA
Strategy		P3	P3 R	P2	P1 P2

Monitoring and Controlling	1	2	3	4	5
Resources			B1 B2 C P1 P3 P2 R	C P1 PA	P2
Processes			B1 B2 C P1 P3 P2 R RE	B1 B2 PA RE	P2 RE
Commitment			B1 C R B2 P2	B2	P2
Communication			C P2		P2
Finance			C P2		P2
Strategy				R	P2

Buildings Certification	1	2	3	4	5
Resources				P2	
Processes				P2	
Commitment	RE	R RE	RE	B2 P2 RE	RE
Communication	RE	R RE	RE	B2 P2 RE	RE
Finance		R		B2 P2	
Strategy		R		B2 P2	

Sustainability Organizations	1	2	3	4	5
Resources					
Processes					
Commitment					
Communication				B2	C R T
Finance				B2	C
Strategy				B2	C T

Sustainable Facility Management	1	2	3	4	5
Resources		C	C	C P2	C P2
Processes		T	P1 RE T	B2 P2 R RE T	P2 T
Commitment		T	B1 P1 T	B2 P2 R T	P2 T
Communication		T	B1 P1 T	B2 P2 T	P2 T
Finance		T	B1 P1 T	B2 P2 T	P2 T
Strategy				P2	P2

Green Supplier Chain	1	2	3	4	5
Resources					
Processes			B2	B2 P2	
Commitment			B2	B1 B2 P2 PA	
Communication			B2 T	B1 B2 P2 PA T	P1
Finance					
Strategy					

Communication with stakeholders	1	2	3	4	5
Resources					
Processes					
Commitment				P2	B2 C
Communication		C	B1 P1 T	C P1 PA R RE T	B2 P1 T
Finance					B2 T
Strategy					B2 T

Communication with employees	1	2	3	4	5
Resources				P1	
Processes				P1	
Commitment				P1 P2	C
Communication		B1 P3	B1 P3	B1 B2 P1 P3 P2 PA R T	B2
Finance				B2 P3 T	B2
Strategy				B2 P3 T	B2

Green Office	1	2	3	4	5
Resources			P1		
Processes			P1		
Commitment			B1 C P1	B1	
Communication			B1 P1	B1	
Finance			P1		
Strategy			P1		

Sustainable Workplaces	1	2	3	4	5
Resources					C
Processes					B2 C
Commitment					B2 C
Communication					B2 C
Finance					B2 C PA
Strategy					B2 C PA

Sustainability Unit	1	2	3	4	5
Resources					
Processes					
Commitment				B2	B2 PA P2
Communication				B2	B2 P2
Finance					P2
Strategy					P2 RE

Sustainability Finance	1	2	3	4	5
Resources	P3	P3	B1		P1
Processes	P3	P3	B1		P1
Commitment	P3	P3	B1		P1
Communication	P3	P3 T	B1		P1
Finance	P3 RE	P3 RE T	B1 P2 RE	P2 R R2	B2 C P1 R RE
Strategy				R	B2 P1

LLA, LLC	1	2	3	4	5
Resources		P3		PA	
Processes		P3 R		P2 PA	
Commitment		P3 R		P2 PA	
Communication		P3 R		P2 PA	
Finance		P3 R		C P2 PA RE	RE B2
Strategy		P3	T	C P2 PA RE T	B2 C RE T

Environmental Policy	1	2	3	4	5
Resources					
Processes					
Commitment		PA RE T	RE T	RE	RE
Communication					
Finance					
Strategy					

Strategy	1	2	3	4	5
Resources					B2 PA
Processes					B2 PA
Commitment					B2 PA
Communication					B2 PA
Finance					B2 PA
Strategy	RE	RE	RE	B1 RE	B2 PA RE

Sustainability Benchmarking	1	2	3	4	5
Resources					PA
Processes					PA
Commitment					PA
Communication					PA
Finance					PA
Strategy					B2 PA